



CITY OF ABERDEEN.

REPORT

BY THE

MEDICAL OFFICER OF HEALTH

(MATTHEW HAY, M.D., LL.D.)

FOR THE YEAR

1910.

With Appendix on Still-Births in Aberdeen.



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POPULATION.

(Tables I., I. (A), and I. (B).)

Advantage has been taken of the census figures for the current year (1911) in order to obtain a correct estimate of the population for 1910. As was anticipated, the population of the city in 1910, as disclosed by the recent census, was considerably under the population estimated by the Registrar-General from the censuses of 1891 and 1901. As estimated from these earlier censuses, the population given by the Registrar-General was 185,703. The recent census shows that it was no higher than 164,800, and that it had, therefore, been overestimated by 20,903. It is very desirable that an intermediate census should be taken of the population in the middle of each decennial period. The method of estimating the population from the increase in inhabited houses, although giving a much closer approximation to the real population than the method of the Registrar-General, is not wholly reliable. According to this method, the population in 1910 should have been 168,448.

TABLE I.—ABERDEEN.—POPULATION AT VARIOUS AGE-PERIODS, 1910.

*(As estimated from Census of 1901 and of 1911.)**

	Under 1 year.	0—5 years.	5—15 years.	15—25 years.	25—60 years.	Above 60 years.	ALL AGES.
Percentage of Population at each Age (according to Census of 1901)	2·71	12·43	21·61	20·58	37·83	7·55	...
Estimated Population at each Age-Period in 1910	4,466	20,485	35,613	33,916	62,344	12,442	164,800

* The proportions of the population at the different age-periods are from the Census of 1901, the proportions for 1911 not being yet published.

In stating the population for the past year at 164,800, as estimated with the help of the recently completed census, it should be mentioned that it is not in exact correspondence with the figures of that census as provisionally published. It was found that the census had been made, as arranged for by the Registrar-General, without a considerable number of persons engaged on steam fishing vessels having been included, owing to their absence at sea over the period during which the enumeration was being made. The attention of the Registrar-General was drawn to this omission, and he at once authorised the Public Health department to obtain a census of the omitted crews. This was carefully carried out with the assistance of the Harbour Police. No persons were counted, although ordinarily resident in the port, if they said they had been enumerated elsewhere. The result of the supplementary census was to raise the population as stated by the Registrar-

General from 163,084 to 163,877. In estimating the population at 164,800 for 1910, I have also included the staff and inmates of Kingseat Asylum and Oldmill Poorhouse, in so far as resident within the bounds of these institutions. Their number at the date of the census was 1,307. Both of these poor-law institutions belong to the City of Aberdeen, and represent institutions that were within the boundaries of the city at the census of 1901. In 1904, Kingseat Asylum was erected, and the pauper lunatics of the city were transferred there from the Royal Lunatic Asylum in the city. In 1907, the new Poorhouse at Oldmill was completed, and received the whole of the inmates of the two Poorhouses within the city. In calculating the various rates given in the report, the births and deaths within these two institutions have been included. It is, therefore, proper that the population of these institutions should be added to the population of the city for the purposes of the report.

If allowance is made for the error due to changes in the boundaries of the city, the percentage increase at successive censuses since 1851 has been, respectively, 2·6 in 1861, 15·9 in 1871, 19·4 in 1881, 18·8 in 1891, 22·9 in 1901, ending with 7·6 in 1911. It is plain that there has been a substantial falling off during the past ten years in the ratio of growth of the city—a falling off that has been mainly confined to the last five or six years—and that we have to go back to the intercensal period of 1851-61 before we find a ratio equally low.

The natural growth of the population of a town is the growth due to the excess of its births over its deaths. Any increase of the population beyond this is the result of migration into the town of persons from other districts, or to the excess of such migrations inwards over migrations outwards; and any decrease is similarly due to the excess of migrations outwards over migrations inwards. In each intercensal period since 1861, except the concluding period, 1901-11, the population of Aberdeen has shown an increase exceeding the natural growth. In other words, from 1861 to 1901 the growth of the population has been accelerated by a substantial excess of inward migrations.

The total amount of such excess during the first four decades was 22,583. It reached its greatest height in 1891-1901, with 7,823. During the past ten years, however, as ascertained from the recent census, the flow of the tide has sharply turned, and the migrations outwards have been in excess of the migrations inwards by 8,828—thus reducing by nearly one-half the natural growth from excess of births over deaths, and sweeping away the whole gain of the preceding ten years. The accompanying table (Table I. (A)) makes these changes plain. The births and deaths given are the aggregates for each decade from the commencement of the year 1861 to the end of the year 1910; while the increase of population during each decade is obtained from the census enumerations, and starts, therefore, with April, 1861, and ends with April, 1911. The area dealt with throughout the whole period includes Old Aberdeen and Woodside, and the other parts of the area of the Parliamentary Burgh which were joined to the city proper in 1891. The increase of 2,900 in the decade 1891-1900 due to the inclusion of Torry has been deducted from the intercensal increase for that decade.

TABLE I. (A).—ABERDEEN.—GROWTH OF POPULATION IN TEN-YEAR PERIODS DURING FIFTY YEARS, SHOWING INCREASE DUE TO EXCESS OF BIRTHS OVER DEATHS AND THE GAIN OR LOSS FROM MIGRATIONS.

TEN-YEAR PERIOD.	Number of Births.	Number of Deaths.	Excess of Births over Deaths.	Actual Increase of Population during each Intercensal Period.	Gain from Inward Migrations.	Loss from Outward Migrations.
1901—1910, .	46,884	26,375	20,509	11,681	.....	8,828
1891—1900, .	43,753	25,916	17,837	25,660*	7,823	.....
1881—1890, .	37,696	22,644	15,052	19,867	4,815	... ..
1871—1880, .	33,241	20,815]	12,426	16,951	4,525	.....
1861—1870, .	28,364	19,464	8,900	14,320	5,420	... ..
Total, .	189,938	115,214	74,724	38,479	22,583	8,828
					13,755 = Net Gain.	

* Excluding 2,900 due to inclusion of Torry.

Aberdeen has by no means stood alone among the principal towns in Scotland in the recent remarkable check in the growth of its population, as will be seen from Table I. (B), in which similar figures to those given in Table I. (A) are supplied for the last intercensal period for the four principal towns. It is proper to note that the census population for Aberdeen in 1911 has been adjusted, as previously explained, to include the inmates of the City Poorhouse and Asylum. No corresponding adjustments, if they are necessary, have been made for the three other towns. The table shows that the losses have been relatively much greater in these three towns than in our own city. In each case the loss from outward migrations has far exceeded the gain from inward migrations, and has fallen only a little short of wiping out almost the whole of the natural growth of the population from excess of births over deaths. Thus, Glasgow lost 90 per cent. of its natural increase, or nearly 81,000 persons; Edinburgh lost 87 per cent., or about 18,700 persons; Dundee, 86 per cent., or about 12,200 persons; while Aberdeen lost 42 per cent., or 8,600 persons.

If regard is had only to the net realised growth of population between the censuses of 1901 and 1911, Aberdeen was distinctly the highest, with 7·6 per cent.; Dundee coming next, with 1·2 per cent.; followed by Glasgow, with 1·1 per cent.; and Edinburgh, with only 0·9 per cent.

Incidentally it may be noted, in regard to Table I. (B), that it discloses the fact that, of the four cities, Aberdeen, on account of having the largest margin between the birth-rate and the death-rate, has a proportionately larger power of natural growth than any of the other cities. Thus, although its population is only

TABLE I. (B)—GROWTH OF POPULATION IN TEN YEARS, 1901-11, IN THE
FOUR PRINCIPAL TOWNS IN SCOTLAND.

	Number of Births.	Number of Deaths.	Excess of Births over Deaths.	Actual Increase of Population as ascertained by Census.	Gain from Migration Inwards.	Loss from Migration Outwards.	Percentage Loss of Excess Births.
Glasgow, . .	240,980	151,127	89,853	8,861	—	80,992	90
Edinburgh, .	76,776	55,227	21,549	2,856	—	18,693	87
Dundee, . .	45,895	31,673	14,222	2,124	—	12,198	86
Aberdeen, . .	46,803	26,474	20,329	11,681*	—	8,648	42

* Includes inmates (1807) of City Asylum and Poorhouse removed outside city during 1901-11.

about half that of Edinburgh, the excess of births over deaths during the past ten years was practically the same as for Edinburgh, viz., 20,329, as compared with 21,549—Edinburgh having a slightly higher death-rate and a distinctly lower birth-rate; and although Dundee has almost the same population as Aberdeen, its excess of births—on account mainly of its high death-rate—was only 14,222. Glasgow, in spite of a much higher death-rate than that of Aberdeen, but aided by a higher birth-rate, approximated more nearly to Aberdeen in the ratio of its natural growth, but did not quite reach it.

If the excess of births over deaths for each of the four cities during the past ten years is expressed as a percentage of the population in 1901, the following results are obtained:—Aberdeen, 13·2 per cent.; Glasgow, 11·6; Dundee, 8·7; and Edinburgh, 6·8. There is something to be said for such figures affording an index of the economic vigour and health of a population.

In comparing the increase of the population in the four cities as shown by the recent census, it has to be kept in view that part of the natural growth of the population may have been lost not in distant emigration, but in an overflow into surrounding and contiguous districts. The comparison may, therefore, be more fair if the population for each city is held as including the inhabitants of the immediately surrounding districts into which the overflow is likely to have taken place. Thus estimated, the ratio of growth of Aberdeen would be raised from 7·6 per cent. to 7·9. This allows for an increase of 676 in the adjacent parish of Peterculter. No other addition has been made to the population of the city for the purposes of this calculation.

In the case of Glasgow, the Registrar-General has estimated that the increase of population in the parishes contiguous with the city of Glasgow amounted to 66,671, but this includes 9,868 in the parish of Paisley. As the industries of Paisley are fairly separate and distinct from those of Glasgow, the figure for Paisley may be deducted, giving an increase in the surrounding parishes of 56,803. In estimating how this increase would affect the increase in the city of Glasgow, if these contiguous parishes had been incorporated within its boundaries, it is

necessary to calculate the rate of increase upon the population of the city and these districts taken together. So calculated, the rate of increase in this larger Glasgow was 6·5 per cent., in place of 1·1. As regards Edinburgh, the increase in the contiguous parishes, including Leith, was 13,308. If the same method of calculation be employed as for Glasgow and Aberdeen, the increase in the population of greater Edinburgh was 3·8 per cent., in place of 0·9. As to Dundee, if the increase in the contiguous parishes, including the burghs of Broughty Ferry and Monifieth, is taken account of, the rate for greater Dundee would be 2·0, in place of 1·2.

The rate of increase for Aberdeen, even after allowance is made for overflow to contiguous districts, remains higher, therefore, than for the other principal towns of Scotland.

It is important to note, with regard to the rates for the years between 1901 and 1910 given in this report, that each rate has been corrected in accordance with the census of 1911, so as to eliminate the error in previous recent reports due to too high an estimate of the population.

Hitherto, the rates given in these reports have been based on the population as calculated for each year by the method of the Registrar-General, although I have always endeavoured to indicate by reference to other methods the probable error in the Registrar-General's estimate. I propose, in future, to base the rates on the population as calculated from the increase of the inhabited houses, modified, if required, by reference to the increase in the Voters' Roll. It is to be hoped that in this way the rates from year to year may be more accurate and reliable.

BIRTHS.

(Tables II. and II. (A).)

The total number of births registered during the year, inclusive of 20 births in the City Poorhouse at Oldmill, was 4,319, or at the rate of 26·2 per 1,000 of the population. In the preceding year (1909), the births amounted to 4,518, and were at the rate of 27·5 per 1,000 of the population. In 1908, the births were 4,472, with a rate of 27·3.

The birth-rate for the past year is the lowest on record since civil registration began in 1855. The decline has been especially marked within the last seven years, during which period it has fallen from 31·5 to 26·2. In other words, for every 5 births in proportion to the population in 1910, there were 6 in 1903, and very nearly 7 in 1876-80.

The birth-rate, as is well known, is falling in almost every civilised country, and the fall is quite as apparent in the other principal towns in Scotland as in Aberdeen. Indeed, the fall has been slightly less in Aberdeen than in Glasgow, Edinburgh, and Dundee, as is shown in the accompanying table (Table II. (A)), in which the average birth-rates for the last two years, 1909-10, are given for each town and for Scotland, and are contrasted with the average rates for the first

TABLE II.—ABERDEEN.—MARRIAGE, BIRTH, AND DEATH RATES—1856 TO 1910.
Per 1,000 of population.

Year.	Population.	Marriages.		Births.		Deaths.*			Excess of Birth-Rate over Death-Rate.
		Number.	Rate per 1,000 of Population.	Number.	Rate per 1,000 of Population.	Number.	Rate per 1,000 of Population.	Average Age at Death.	
1910	164,800	1,325	8·0	4,319	26·2	2,339	14·2	40·8	12·0
1909	164,100	1,347	8·2	4,518	27·5	2,675	16·3	36·2	11·2
1908	163,600	1,297	7·9	4,472	27·3	2,582	15·8	37·4	11·5
1907	163,100	1,473	9·0	4,502	27·6	2,474	15·2	37·8	12·4
1906	162,500	1,358	8·4	4,712	29·0	2,491	15·3	35·9	13·7
1905	161,500	1,374	8·5	4,892	30·3	2,618	16·2	36·5	14·1
Mean of 1905-1909	162,960	1,370	8·4	4,619	28·3	2,568	15·8	36·8	12·5
1904	160,100	1,505	9·4	4,885	30·5	2,826	17·7	33·6	12·8
1903	158,300	1,460	9·2	4,986	31·5	2,741	17·3	34·2	14·2
1902	156,300	1,429	9·1	4,814	30·8	2,816	18·0	35·7	12·8
1901	154,208	1,372	8·9	4,784	31·0	2,813	18·2	34·4	12·8
1900	151,386	1,359	9·0	4,810	31·8	2,866	18·9	34·4	12·9
Mean of 1900-1904	156,059	1,425	9·1	4,855	31·1	2,812	18·0	34·5	13·1
1896-1900	145,740	1,356	9·3	4,636	31·8	2,644	18·1	33·3	13·7
1891-1895	131,627	1,099	8·4	4,114	31·3	2,539	19·3	32·9	12·0
1886-1890	117,587	911	7·8	3,827	32·5	2,370	20·2	...	12·3
1881-1885	108,959	848	7·8	3,712	34·1	2,159	19·8	...	14·3
1876-1880	100,419	788	7·9	3,480	34·7	2,100	20·9	...	13·8
1871-1875	91,941	705	7·7	3,169	34·5	2,063	22·4	...	12·1
1866-1870	84,234	684	8·1	3,010	35·7	1,978	23·5	...	12·2
1861-1865	77,040	624	8·1	2,663	34·6	1,915	24·9	...	9·7
1856-1860	73,458	524	7·1	2,397	32·6	1,772	24·1	...	8·5

* Corrected for transferred deaths for 1904 and subsequent years.

five years of each intercensal period since 1871. The death-rates are also given, as well as the excess of the birth-rate over the death-rate.

The table shows that the decline of the birth-rate in 1909-10 since 1871-75 has been 31 per cent. in Edinburgh, 28 per cent. in Dundee, 27 per cent. in Glasgow, and 22 per cent. in Aberdeen. In All Scotland, it was 24. In the earlier years, Dundee showed a more decided decline than any of the other towns.

In Aberdeen, and especially in Glasgow, the death-rate, since 1881-85, has declined even more rapidly than the birth-rate; while, in Edinburgh, and especially in Dundee, the fall in the death-rate has been less rapid than the fall in the birth-rate.

The relation of the decline in the birth-rate to the marriage-rate is discussed later under the marriage-rate.

The proportion of males to females born during each of the past five years in Aberdeen has been as follows:—

Year.	Males to 100 Females.	Year.	Males to 100 Females.
1905,	102	1908,	104
1906,	105	1909,	102
1907,	113	1910,	101

There has been a curious and interesting increase in the proportion of males from 102 in 1905 to 113 in 1907, followed by a rapid decline to 101 in 1910. The causes of such changes in a human community are as yet unknown, although several interesting discoveries in regard to the determination of sex have been made in recent years in experiments with lower forms of animal life.

The proportion of illegitimate births during the year was 8·8 per cent., or slightly more than 1 in every 11 births. The average for the preceding five years (1905-09) was 9·2 per cent. The year 1910 shows, therefore, a slight fall. The proportion is, however, slightly higher than it was in the eight years preceding 1905, during which years, owing apparently to a higher marriage-rate, consequent on industrial prosperity, the percentage of illegitimate births fell to 8·1—the lowest it has reached since civil registration began.

The proportion of illegitimate births in Aberdeen, which in the earlier years of civil registration—some fifty years ago—reached 14 to 15 per cent., and stood above the proportion for the other large Scottish cities, especially Glasgow and Edinburgh, is now about the same as in Dundee and Edinburgh, although still slightly above that for Glasgow, which last year was 7·3.

I hope, in my next report, to be able to give the results of an inquiry into some of the circumstances of illegitimate births in Aberdeen.

In 1910 it was possible for the first time in Aberdeen, by the operation of the Notification of Births Act, to obtain information regarding the number of still-births. Under the Act the births of all still-born infants born after the seventh month of pregnancy must be notified to the Medical Officer of Health. In all, 193 still-births were notified, including 13 such births regarding which it was found on inquiry that the child was supposed to have been born between the sixth and

TABLE II. (A).—DECLINE OF BIRTH-RATE IN FOUR PRINCIPAL TOWNS IN SCOTLAND,
WITH EXCESS OF BIRTH-RATE OVER DEATH-RATE.
(Per 100,000 of Population)

	All Scotland.			Glasgow.			Edinburgh.			Dundee.			Aberdeen.		
	Birth-rate.	Death-rate.	Excess.	Birth-rate.	Death-rate.	Excess.	Birth-rate.	Death-rate.	Excess.	Birth-rate.	Death-rate.	Excess.	Birth-rate.	Death-rate.	Excess.
1871-75 (5 years)	350	227	123	396	301	95	327	247	80	382	274	108	345	224	121
1881-85 (")	333	195	138	384	264	120	304	194	110	337	213	124	341	198	143
1891-95 (")	305	190	115	339	230	109	274	198	76	305	208	97	313	193	120
*1901-05 (")	289	169	120	313	195	118	242	174	68	284	193	91	308	175	133
*1909-10 (2 ")	267	154	113	289	179	110	227	153	74	276	194	82	269	153	116
Percentage Fall—															
(a) Since 1871-75	24	32	...	27	41	...	31	38	...	28	29	...	22	32	...
(b) Since 1881-85	20	21	18	25	32	8	25	21	33	18	9	34	21	23	19

* Rates corrected for Census of 1911 ; and, in 1909-10, corrected for transferred Deaths.

seventh months of pregnancy. A special inquiry was made, with the assistance of the Health Visitors, into the circumstances of all the still-births occurring during the year. The results of this inquiry are given at length in an Appendix to this report. It will there be found that I give reasons for believing that at least 10 per cent. of the still-births escaped notification. Allowing for this loss, I estimate the proportion of still-births in the total births to have been 47 per 1,000.

MARRIAGES.

(Tables II., II. (B), II. (C), and II. (D).)

During the past year there were 1,325 marriages within the city, equivalent to a rate of 8·0 per 1,000 of population. In the preceding year, there were 1,347 marriages, with a rate of 7·4; and in 1908 there were 1,297 marriages, with a rate of 7·9.

The marriage-rate is under the average for the preceding ten years, which was 8·7.

I have gone carefully into the constitution of the marriage-rate for the past year. This is a rate that usually receives little attention in public health reports, except as an indication of industrial prosperity; for it usually rises when employment is plentiful and business is profitable, and falls when the reverse is true. The marriage-rate has, however, a considerable bearing on the determination of the causes and the extent of the remarkable decline in the birth-rate, to which reference has already been made.

It is apt to be assumed that the marriages registered in a particular town represent more or less correctly the number of persons commencing their married life in the town. This would be true if the marriages occurring in the town were restricted to couples in which one or both of the parties were resident in the city, and if in those cases where one of the parties was non-resident, the number of couples proceeding after marriage to reside or settle outwith the town—which is usual when a man from outside marries a woman belonging to the town—was approximately balanced by the number of couples who, although married and registered elsewhere, came after marriage to reside in the town—which usually happens when a man resident in the town marries a woman from outside the town.

I find, however, in analysing the registered marriages last year in Aberdeen, in regard to the place of residence of the parties marrying, that they include an unexpectedly large number of marriages that cannot properly be included in an attempt to estimate the real marriage-rate of the city; and the same is doubtless more or less true of other large towns.

Thus, out of the 1,325 marriages during the year, 217—or nearly one-sixth of the whole—were of parties both of whom were, previous to marriage, not resident in the city, and presumably did not on marrying take up residence there. In addition, there were—contrary to the usual rule, that the marriage is celebrated in the place of residence of the bride—45 marriages in Aberdeen of men resident in Aberdeen with women resident elsewhere. It is almost certain that these 45

marriages, which were chiefly of women from the surrounding rural districts, were far from being wholly balanced by a similar number of marriages, in such districts, of Aberdeen women with men resident in the country.

Practically no allowance need be made for balancing marriages elsewhere as against the 217 marriages of non-residents. In no case did the married couples come from other large towns, thus suggesting that persons from Aberdeen might similarly have proceeded to be married in such towns. With one exception, they were wholly from the districts—chiefly the rural districts—around Aberdeen, and within the counties usually spoken of as the North-Eastern Counties of Scotland.

There is a growing tendency for persons residing in villages or rural districts in the vicinity of a large town to arrange for the marriage being performed in a hall or hotel in the town, even if neither party is resident in the town. Such marriages are, of course, registered in the place where the marriage is celebrated. The same is true of marriages of men residing in the town with women residing in the surrounding districts. It is to this latter class that the 45 marriages referred to nearly all belong.

This inclination to resort to towns for the convenience of obtaining a suitable place for the marriage is not, however, the sole reason for the large number of marriages of non-residents. Among the 217 such marriages last year, there were 59 irregular marriages, that is, marriages without Church rites. These marriages usually take place in a lawyer's office, and are afterwards declared before a Sheriff. It is, therefore, convenient for persons living in country districts, and desiring to contract such marriages, to come to a town, and especially to a town where a Sheriff is resident.

It is evident, therefore, that the real marriage-rate for Aberdeen, as based on the number of marriages followed by settlement in Aberdeen, is substantially under the rate calculated from the marriages registered. Last year, the latter rate, as already stated, was 8·0 per 1,000 of the population. If only the marriages in which neither party belonged to the city are deducted, the rate becomes reduced to 6·7.

In order to ascertain to what extent the recorded marriage-rate of former years has been vitiated by the inclusion of such marriages, I have extracted from the Registrars' books the number of such marriages in every tenth year since 1861. The numbers are—for 1861, 39; for 1871, 49; for 1881, 66; for 1891, 173; and for 1901, 223. The number has, therefore, up to 1901, steadily grown, when it was fully as large as in 1910; and the error in the marriage-rate from this cause has consequently also grown. If the marriage-rates since 1866, as calculated from the registered marriages, are corrected in accordance with those figures for marriages of non-residents, the rates become reduced from those shown in Table II. to those given in Table II. (B)—the reduction varying from 0·5 in 1866-70 to 1·1 in 1910.

This correction materially affects our inferences as to the fluctuations in the marriage-rate, and the relation of the marriage-rate to the birth-rate. Thus we find that the average yearly marriage-rates in the five-year periods 1866-70 and

1906-10, in place of being 8·1 and 8·0 respectively, and, therefore, practically alike, were really 7·6 and 6·9; and that, accordingly, the reduced birth-rate recorded in the later period was in some considerable measure to be accounted for by a diminished marriage-rate as well as by a lessened average fertility for each marriage.

TABLE II. (B)---ABERDEEN.—FERTILITY OF MARRIAGES (1866-1910).

FIVE-YEARLY PERIODS.	ABERDEEN.			ALL SCOTLAND.		
	Birth-Rate (Legitimate) per 1,000 Population.	* Marriage-Rate (Corrected) per 1,000 Population.	† Births to each Marriage.	Birth-Rate (Legitimate) per 1,000 Population.	Marriage-Rate (Recorded) per 1,000 Population.	† Births to each Marriage.
1906—10, .	25·0	6·9	3·3	24·9	6·6	3·6
1901—05, .	28·3	7·6	3·8	27·0	7·0	3·9
1896—1900, .	29·2	7·9	4·1	27·9	7·3	4·1
1891—95, .	28·3	7·0	4·2	28·3	6·8	4·2
1886—90, .	29·1	6·5	4·2	28·9	6·5	4·3
1881—85, .	30·5	6·9	4·3	30·5	6·9	4·3
1876—80, .	30·9	7·2	4·2	31·8	6·9	4·5
1871—75, .	30·3	7·1	...	31·8	7·5	...
1866—70, .	31·1	7·6	...	31·5	7·0	...

* Corrected by deducting marriages of parties neither of whom resided in Aberdeen.

† Obtained by dividing the legitimate birth-rate for the quinquennium by the average of the birth-rates for the same quinquennium and the preceding two quinquennia.

In Table II. (B) are given the birth-rates for legitimate children in quinquennial periods since 1866, along with the corrected marriage-rate. The births to each marriage are also given for each quinquennium, and have been obtained by dividing the birth-rate for the particular quinquennium by the average of the corrected marriage-rates for this quinquennium and the preceding two quinquennia as covering the more usual period of fertility following upon marriage. For comparison, I have given the corresponding rates for the whole of Scotland. Here, of course, no correction of the registered marriage-rate is required.

The table shows that up to 1895, and almost to 1900, the number of births in Aberdeen to each marriage was about 4·2, and remained practically unchanged. In 1896-1900 there was a slight indication of a commencing fall, the proportion of births being 4·1. Since that time—in other words, during the last ten years—there has been a rapid fall, the proportion in 1901-05 being 3·8, and in 1906-10, 3·3. The velocity of the fall has, like that of a dropping stone, become accelerated with increase of time, the figures for the four last five-year periods—4·2, 4·1, 3·8, and 3·3—giving increasing differences of 0·1, 0·3, and 0·5.

TABLE II. (D).—ABERDEEN.—MARRIAGES IN YEAR 1910.

Age at Marriage in relation to Occupation—Percentage Marrying at Age-Groups.

A.—MEN.

Age.	Labouring.	Artisan.	Commercial.	Professional.	Other.	All
Number Married	110	819	285	109	2	1325
Under 20, . . .	p. cent. 7	p. cent. 3	p. cent. 1	p. cent. 1	p. cent. 0	p. cent. 3
20-25, . . .	36	39	25	18	0	34
Total under 25,	43	42	26	19	0	37
25-35, . . .	42	44	51	64	0	47
35 upwards, . .	15	14	23	17	100	16
	100	100	100	100	100	100

B.—WOMEN.

AGE.	Domestic Servants.	Dress-makers and Milliners.	Factory Workers.	Sales-women.	Clerks and Typists.	Teachers and Nurses.	Other Occupations.	No stated Occupation.	All.
Number Married	355	72	422	95	40	55	20	266	1325
Under 20, . . .	p. cent. 8	p. cent. 8	p. cent. 17	p. cent. 6	p. cent. 5	p. cent. 0	p. cent. 10	p. cent. 8	p. cent. 10
20-25, . . .	37	32	54	40	32	13	5	36	40
Total under 25,	45	40	71	46	37	13	15	44	50
25-35, . . .	40	53	27	43	53	67	35	44	39
35 upwards, . .	15	7	2	11	10	20	50	12	11
	100	100	100	100	100	100	100	100	100

The figures for All Scotland agree fairly closely with those for Aberdeen, except that the fall has been somewhat less pronounced than in Aberdeen, the number of births to a marriage being 3·6 in 1906-10, as against 3·3 in Aberdeen. The fall, however, began about the same time in All Scotland, or possibly a little earlier, and the velocity of the fall is also undergoing acceleration.

Comparisons have occasionally been made between large towns and surrounding rural districts in order to show that the productiveness of marriages in towns is considerably lower than in rural districts; and, in this, some authorities have professed to find proof of the deteriorating effect of town life on the physical vigour of the population. The registration figures for Aberdeen and the adjacent rural districts have hitherto pointed in that direction, on account of the error in the marriage-rate, to which reference has been made. The necessary correction, as it is practically wholly based on a transference of marriages from these adjacent rural districts to the city, means, when applied to the rates for both the city and the adjacent districts, that the marriage-rate for the latter is raised while the rate

for the former is lowered. Like the transference of a vote between two opposing parties in Parliament, every transferred marriage counts as two in the division.

I have ascertained the number of marriages and legitimate births during the ten years 1900-09 in the North-Eastern Counties of Scotland (Aberdeenshire, Kincardineshire, Banff, Elgin, and Nairn), which have practically provided all the persons for the marriages in Aberdeen in which neither party is resident in the city, and I have constructed the following table, in which the births to each marriage in Aberdeen and in the rest of these counties are calculated upon the recorded marriage-rates, and also upon the corrected marriage-rates. It will be

	Birth Rate (Legitimate).	Marriage Rate (Recorded).	Number of Births to each Marriage.	Birth Rate (Legitimate).	Marriage-Rate (Corrected).	Number of Births to each Marriage.
Aberdeen City,	27·1	8·8	3·1	27·1	7·4	3·7
North-Eastern Counties (ex- cluding Aber- deen City), }	23·2	5·3	4·4	23·2	6·0	3·9

seen that while the uncorrected marriage-rates appear to be relatively high in Aberdeen and low in the rest of the district—8·8 as compared with 5·3—the corrected marriage-rates much more nearly approximate, being 7·4 and 6·0 respectively; and that while the number of legitimate births to each registered marriage (calculated in this case by dividing the births for the ten years by the marriages for the same period) are 3·1 for the city and 4·4 for the rest of the district, the number of births to each marriage, after correction, is 3·7 for the city and 3·9 for the rest of the district. In other words, the productiveness of marriages in the town is not substantially under that in the rural districts.

Returning to the total registered marriages (1,325) in Aberdeen during the year, and leaving aside the question of the deduction for marriages of extraneans, we find, if they be analysed in respect of mode and place of marriage, that 129 of the marriages were irregular, whereof, as already stated, 59 were marriages of parties neither of whom was resident in the city.

The number of irregular marriages has rapidly increased in Aberdeen in recent years. In 1861, there were no such marriages; in 1871, there was only 1; in 1881, there were 3; in 1891, 18; in 1901, 30; and, as just stated, there were 129 in 1910.

As to the Church rites according to which the 1,196 regular marriages in 1910 were celebrated, they were distributed as follows:—Established Church, 635, or fully one-half of the whole; United Free Church, 368; Congregational, 71; Episcopal, 58; Roman Catholic, 36; Baptist, 12; Wesleyan, 6; Unitarian, 5; Christian Brethren, 3; Salvation Army, 1; and Jews, 1.

There is also great diversity between the different sects in respect of the

place of celebration. All the Episcopalian marriages, with the exception of 2, were conducted in church; and so were all the Roman Catholic marriages, excepting 4. On the other hand, of the Established Church marriages only 1 in every 16 was conducted in church; of the United Free Church marriages, 1 in every 9; of Congregational marriages, also 1 in 9; Baptist, 1 in 12; Wesleyan, 1 in 3; Unitarian, 1 in 5.

Of all the Churches, the Established had, therefore, the lowest proportion of marriages in church, and the Episcopalian had the highest.

In all, 181 marriages were celebrated in church. Of the remaining 1,015 regular marriages, 545 took place in private houses, and 470 in halls, hotels, or similar places.

In Tables II. (c) and II. (d), I give for the first time in these reports various particulars in regard to the number, age, status, occupation, and residence of persons marrying.

Status.—The tables show that in the 1,325 marriages registered during the year, 1,199 were marriages of bachelors and 126 marriages of widowers. In other words, every eleventh bridegroom was a widower. As regards the women, 1,262 were spinsters and 63 were widows. The number of widows remarrying was, therefore, exactly one-half of the number of widowers. Slightly under a half of the widowers were above 45 years of age. Only one-fourth of the widows were above that age. Under the age of 30, however, the marriages of widows were as numerous as those of widowers.

Residence.—Reference has already been made to the fact that 217 of the marriages were of persons neither of whom was resident in the city. If these be deducted, there remain 159 marriages in which the bridegroom was not resident in Aberdeen, and 949 in which he was resident. The corresponding figures for the brides are 45 and 1,063.

On the assumption—which, of course, is not quite justifiable—that all the Aberdeen women who married during the year were married in the city, 949 of them were married to men resident in the city, and only 114 were married to men from outside Aberdeen.

Occupations of the men.—I have grouped all the men, in respect of occupation, into four classes—labouring, artisan (including all forms of skilled labour), commercial (including all dealers and shopkeepers, and their clerks), and professional (including bankers, accountants, and insurance agents, as well as the three “learned” professions, and the clerks of this class). Of labourers, 110 were married during the year; of artisans, 819; of commercial persons, 285; and of professional persons, 109. There were 2 unclassified. Thus, of all the men marrying, almost exactly 70 per cent. belonged to the so-called wage-earning classes, and 30 per cent. to the commercial and professional classes.

I have endeavoured to ascertain the proportion which the number in each class bore to the whole population of that class above 20 years of age, as estimated

from the census of 1901—the occupation figures for the census of 1911 not being yet available. The proportions were—for labourers, 25 per 1,000; and for artisans, 39 per 1,000; or for both combined, 36 per 1,000. The proportions for commercial persons were 26 per 1,000, and for professional persons, 31 per 1,000—or for both, 28 per 1,000.

On the assumption that the number of children produced by each marriage is the same on an average for all classes, these figures show that the wage-earning classes, as a whole, to judge from last year, are contributing more than their due quota to the growth of the population, as compared with the commercial and professional classes; and the difference is probably greater than is represented by the marriage-rates, as there is reason for believing that the productiveness of the marriages of the labouring and artisan classes is higher than that for the commercial and professional classes. There are some who believe that they find in this an indication of a progressive deterioration of the race. It has, however, to be noted that, so far as concerns Aberdeen, the proportion of marriages among the unskilled workmen or labourers was small—being actually less than that for the commercial and professional classes.

It is true that the proportion among artisans was high, but there is no good reason for believing that the bulk of the artisan class are inferior physically or even mentally to the bulk of the commercial and professional classes. Such differences as exist are in large measure due to differences of opportunity and education. Probably the country or city in which the upper and controlling classes are being largely replenished from the best households of the lower ranks, with their enforced habits of strenuous work and thrift, is more likely to be strong and progressive than the country or city in which, from equality of reproduction among the various classes, such replenishment finds less scope. The information that has been obtained in the recent census in regard to the size of each family will, when it is published, be of much value in this connection.

Ages of the men.—As regards the ages of the men who married during the past year, the most frequent ages were 22 to 25—about one-third of all the marriages taking place at these ages.

The labouring class showed, as was to be expected, by far the largest proportion of early marriages. Labourers have no period of apprenticeship to serve, and they reach their full wage at a relatively early age. Moreover, they represent more largely than the other classes the improvident element in the population of every town. Of the labourers married, 7 per cent. were under 20 years of age. The corresponding percentages for the other classes were—3 for the artisan class, 1·4 for the commercial class, and 1 for the professional class.

If the occupational classes are similarly compared in respect of the marriages at all ages under 25 years, it is found that the labouring and artisan classes were almost alike—43 and 42 per cent. respectively. Thus not far short of half of their marriages were of men under 25 years; while the percentage for the commercial class was 26, or fully one-fourth, and for the professional class only 19, or slightly under one-fifth.

During the next ten years of age (25 to under 35 years) the deficiency in the marriages of the last two classes was rapidly made good, so that by the end of that age-period the proportions were almost equal for the three classes of labourers, artisans, and professional persons, and ranged from 83 to 86 per cent. For the commercial class it was only 77 per cent.

If the comparison be confined to the commercial and professional classes, it is found that a somewhat larger proportion of the marriages of the former than of the latter class took place at an early age, before 25, but that the latter class subsequently outstripped the former, so that by the age of 35 the proportions were reversed. In other words, it would appear that professional men are a little later than commercial men in beginning to marry, but once they begin, they marry off more quickly.

Occupations of the women.—As regards the women, I have divided them into eight occupational groups, viz., domestic servants, with 355 marriages during the year; dressmakers and milliners, with 72; factory and other workshop workers, with 422; saleswomen, with 95; clerks and typists, with 40; teachers and nurses, with 55; other occupations, with 20; and women of no stated occupation, with 266.

The proportion of women in each class marrying to the total number of persons belonging to such class in the city, as calculated from the census, is not of the same value as the corresponding proportion for men. The occupation of a woman, apart from her household duties, is usually abandoned on her marriage, and there is a great diversity in the age-constitution of the different occupational classes of women. It may, however, be mentioned that the marriage-rate per 1,000 of the women in the various classes was, approximately, 10 per cent. for domestic servants, 4 per cent. for dressmakers and milliners, 8 per cent. for factory workers, 6 per cent. for saleswomen, 5 per cent. for clerks and typists, and 4 per cent. for teachers and nurses.

Ages of the women.—As to the ages of the women at marriage, the most frequent ages were 20 to 25—nearly one-half of all the women being married at these ages. Fourteen girls were married at ages under 18—ten of these being workers in factories or workshops.

Under the age of 20, including those under 18, there were 137 marriages, of which more than a half were of factory workers. The percentage at this age to the total number married in each class was 17 for factory workers; 8 for each of the classes of dressmakers and milliners, domestic servants, and women without stated occupation; 6 per cent. for saleswomen; and 5 per cent. for clerks and typists. No teacher or nurse was married under 20.

By the time the age of 25 is reached, 71 per cent., or nearly three-fourths of the marriages of factory workers had taken place. The corresponding percentages for saleswomen and domestic servants were 46 and 45 respectively; for women without stated occupation, 44; for dressmakers and milliners, 40; for clerks and typists, 37; and for teachers and nurses, only 13.

The class of women presumably least qualified for early marriage appears to be precisely that which marries earliest, viz., factory workers; while one of the classes most likely by training and intelligence to make good house managers, namely, teachers and trained nurses, are the latest to marry.

DEATHS.

(Table II.)

The total number of deaths during the year was 2,339, equivalent to a death-rate of 14·2 per 1,000 of the population as estimated from the censuses of 1901 and 1911. In the preceding year, the deaths amounted to 2,675, giving a death-rate of 16·3.

These death-rates, it is important to note, have been obtained after adjusting the deaths by the interchange between this and other districts of deaths of persons occurring in districts outside their usual place of residence. This adjustment is especially necessary in Aberdeen, as the City Poorhouse and City Asylum are situated outside the boundary of the town. I venture to repeat the suggestion made in the report for the preceding year, that the Town Council should approach the Registrar-General with a view to his authorising, for registration purposes, the inclusion of such institutions within the registration area of the city.

The death-rate (14·2) for the year is distinctly the lowest death-rate on record since civil registration began, the next lowest being 15·2 in 1907, and 15·3 in 1906. The exceptional lowness of the death-rate was in part due to an unusually diminished prevalence of the more common infectious diseases, and to the reduced mortality from bronchitis and pneumonia which is nearly always experienced when cases of measles and whooping cough are few.

The average age at death of all persons dying has been given in every monthly report since 1890, but no use has been made hitherto of such information in the annual reports. In Table II. in the present report, will be found the average age at death since 1891, and it will be seen that, while in the quinquennium 1891-1895 the average age was 32·9 years, it has gradually risen to 36·8 in the quinquennium 1905-1909, and to 40·8 in 1910. These figures, although open to correction for variations in the age and sex constitution of the population, nevertheless roughly indicate for the past twenty years the extended duration of life due to the gradually diminishing death-rate.

ANALYSIS OF THE DEATH-RATE.

(a) *Mortality in relation to Age (Tables III., IV., IV. (A), and V.).*

Infantile Mortality.—During the year, there were 478 deaths among children under one year of age, as compared with 671 in the preceding year, or a decrease of 193. This is a very large and gratifying decrease, but it has to be kept in view that the number of infant deaths in the preceding year was higher by 94 than in 1908.

TABLE III.—ABERDEEN.—MORTALITY FROM ALL CAUSES AT VARIOUS AGE-PERIODS *
(per 1,000 of population at each age).

Year.	INFANTILE MORTALITY. Deaths of Infants under 1 year per 1,000 Births.	AGE PERIOD.					All ages.
		0—5 years. (Infant Period.)	5—15 years. (School Period.)	15—25 years. (Adolescent Period.)	25—60 years. (Mature Period.)	60 years and upwards. (Post-mature Period.)	
1910 . .	111	31·5	2·9	3·2	9·5	71·7	14·2
1909 . .	149	46·4	3·0	3·5	10·5	68·8	16·3
1908 . .	129	41·2	3·0	3·5	10·9	68·9	15·8
1907 . .	125	40·9	2·7	3·1	10·5	63·1	15·2
1906 . .	127	43·6	2·5	3·6	10·4	60·8	15·3
1905 . .	138	45·6	2·9	3·8	11·0	63·9	16·2
Mean of 1905-1909 (Five years).	134	43·5	2·8	3·5	10·7	65·1	15·8
1904 . .	151	56·1	3·1	3·6	11·4	64·5	17·7
1903 . .	135	50·5	2·8	4·7	12·0	63·7	17·3
1902 . .	137	48·8	2·8	5·2	12·9	70·0	18·0
1901 . .	152	52·2	3·4	5·1	12·4	68·3	18·2
1900 . .	149	54·4	3·0	4·9	14·0	68·9	18·9
Mean of 1900-1904 (Five years).	145	52·4	3·0	4·7	12·5	67·1	18·0
1896-1900 .	144	54·2	3·4	5·0	12·4	63·6	18·1
1891-1895 .	147	57·5	4·5	5·8	12·5	67·7	19·3
1886-1890 .	140	52·9	4·8	7·0	13·3	69·8	20·2
1881-1885 .	126	50·9	5·4	6·4	13·1	69·5	19·8
1876-1880 .	129	53·1	6·2	7·7	13·4	69·5	20·9
1871-1875 .	133	57·5	7·7	8·2	14·4	70·9	22·4
1866-1870 .	133	68·0	7·2	8·9	14·7	71·4	23·5
1861-1865 .	130	68·9	8·1	10·5	16·3	73·1	24·9
1856-1860 .	126	67·8	9·3	9·8	15·1	70·0	24·1

* Corrected for transferred deaths in 1904 and subsequent years.

The infant mortality rate—111 deaths per 1,000 births—during the past year is the lowest for any year for which records are available. The next lowest year was 1907, with a rate of 125 per 1,000 births. Throughout almost every month of the year, as will be seen by reference to Table XVII., the number of infant deaths was greatly under the average, except in the month of August.

The decline was largely due to a well-marked diminution in the deaths from congenital defects, from bronchitis—which contributed less than half its usual number of deaths—diseases of the digestive system (including diarrhœa), tuberculous diseases, and especially measles and whooping cough, from which two diseases, taken together, there were only 11 deaths, as compared with an average of 54 in the preceding five years.

It was disappointing to find that the deaths from wasting and debility were more numerous than usual, and that the large number of deaths (42) attributed to convulsions had not been reduced, as compared with the average. The deaths of infants certified as due to diseases of the digestive system, wasting and debility, and convulsions are, however, largely caused by improper feeding, and should, therefore, be largely preventible. These deaths amounted last year in the aggregate to 181, or more than one-third of the total number of infant deaths. It is evident that, notwithstanding the large decline in infantile mortality last year, there is scope for an equally great reduction in future.

It is suggestive that of the 69 deaths assigned to diseases of the digestive system (including diarrhœa), only 8 took place during the first month of life. It is plain that the errors of feeding and the lack of care in keeping food pure take some time to manifest themselves in the life of the infant, and that there is, therefore, a better opportunity of checking the effects of such errors by the proper instruction of mothers within the first few weeks after their confinement.

Table IV. (A) gives details of the causes of death among infants for 1910, and for each of the preceding ten years. In this table, which is a new one, I give for each year the number of surviving infants, after deducting the deaths under one year, and calculate the rate of survivors per 1,000 of the population, as representing the net gain to the population after the great perils of the first year of life have been passed. This rate was practically the same for each of the past two years, although the infant mortality was very high in 1909 and very low in 1910. In the former year the births had been relatively more numerous than in the latter year, thus neutralising the high mortality.

In the same table, some of the chief causes are grouped according as they are of a developmental and less controllable nature, such as prematurity and congenital defects, or definitely arise after birth from more controllable causes, such as disorders of the digestive system with their effects of wasting and debility and, not infrequently, of convulsions. Another group is composed of the principal lung diseases. The chief zymotics are each separately given.

The table shows, as was to be expected, that the deaths in the developmental group have not undergone material change in the last ten years. On the other hand, the deaths in both the digestive and lung groups exhibit a considerable

TABLE IV.—ABERDEEN.—CAUSES OF DEATH AMONG CHILDREN UNDER FIVE YEARS OF AGE.—Year 1910.

(Corrected for transferred deaths.)

CAUSES OF DEATH.	AGE.																	Average for Preceding 5 Years.	
	WEEKS.					MONTHS.					YEARS.					Total			
	0-1	1-2	2-3	3-4	*0-1	1-2	2-3	*0-3	3-6	6-9	9-12	*0-1	1-2	2-3	3-4		4-5		
Prematurity	72	7	9	6	93	13	2	108	...	...	...	108	...	...	...	...	108	113	113
Congenital Defects	20	2	1	1	24	2	2	27	1	...	...	28	...	...	...	1	30	47	48
Wasting and Debility	11	1	6	2	21	10	11	42	16	8	4	70	...	...	...	...	71	55	55
Convulsions	3	2	2	1	8	5	7	20	11	5	6	42	4	1	1	...	48	43	52
Inflammation of Brain and Membranes . . . . .	...	...	...	1	1	...	...	1	1	3	3	8	3	1	1	...	13	12	21
Pneumonia	1	1	...	...	2	5	6	13	19	14	7	53	24	4	6	3	90	57	104
Bronchitis . . . . .	...	...	1	1	2	7	2	11	3	6	2	22	11	2	...	...	35	53	66
Diseases of Circulation . . . . .	...	...	...	1	1	...	...	1	...	...	...	1	...	...	...	...	1	8	10
Urinary Diseases . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	0.8	1.8
Diseases of Digestive System, incl. Diarrhoea	3	1	2	2	8	7	13	29	21	13	6	69	16	2	2	2	91	94	116
(a) Brain . . . . .	...	...	...	...	...	1	...	1	...	1	...	2	6	4	2	4	18	9	30
(b) Abdomen . . . . .	...	...	...	...	...	...	...	...	3	3	1	7	4	2	...	1	14	7	20
(c) Lungs . . . . .	...	...	...	...	...	1	...	1	...	...	...	1	1	2	...	...	2	1.8	8
(d) Other forms . . . . .	...	...	...	...	...	1	...	1	1	...	...	2	1	1	2	...	8	2.0	7
Measles . . . . .	...	...	...	...	...	...	...	...	1	1	1	3	6	...	1	1	4	18	46
Whooping Cough . . . . .	...	...	...	1	1	2	...	3	2	1	2	8	1	1	1	1	16	36	70
Scarlet Fever . . . . .	...	...	...	...	3	...	...	...	...	...	...	7	7	3	2	5	4	0.8	7
Diphtheria . . . . .	...	...	3	...	3	...	...	3	1	1	2	7	...	...	...	...	24	34	15
Typhoid Fever . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Cerebro-Spinal Meningitis . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.4	0.6
Burns and Scalds . . . . .	...	...	...	...	...	...	...	...	...	1	...	1	3	...	3	...	7	1.2	10
Suffocation	1	...	...	...	1	2	2	5	...	...	...	5	1	...	...	...	6	7	8
Other Accidents . . . . .	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	2	1.0	4.0
Other Causes	1	4	2	3	10	5	4	19	10	6	5	40	8	2	1	...	50	48	68
ALL CAUSES	112	18	26	19	175	61	49	285	91	63	39	478	98	24	25	20	645	619	880
Average for preceding 5 years	109	34	30	24	197	66	62	325	125	94	74	619	145	60	33	23	880		

* This column includes all deaths in preceding columns.

TABLE IV. (A).—ABERDEEN.—INFANT MORTALITY.—Years 1900-1910.
(Corrected for transferred deaths since 1904.)

YEAR.	No. of Births.	Births per 1,000 of Population.	Deaths of Infants under 1 year.	Deaths of Infants under 1 year per 1,000 Births.	No. of Survivors.	Survivors per 1,000 of Population.	No. of Deaths among Children Dying under 1 Year of Age from Chief Causes.										No. of Deaths from All Causes at Ages	
							Prematurity and Con- genital Defects.	Dis. of Digest. System, Wasting and Debility, Convulsions.	Bronchitis and Pneumonia.	Tuberculosis.	Measles.	Whooping Cough.	Diphtheria.	Scarlet Fever.	Suffocation.			
																Under 1 Week.	Above 1 and under 4 Weeks.	
1910	4319	26.2	478	111	3841	23.3	136	181	75	12	3	8	7	0	5	112	63	
1903	4518	27.5	671	149	3847	23.4	172	194	133	22	7	56	5	0	7	130	114	
1908	4472	27.3	577	129	3895	23.8	119	191	98	20	30	34	2	1	7	85	79	
1907	4502	27.6	561	125	3941	24.2	143	175	108	18	12	45	4	2	7	101	86	
1906	4712	29.0	599	127	4113	25.3	148	201	84	21	29	29	3	1	8	123	76	
1905	4892	30.3	678	138	4214	26.1	153	255	132	19	12	16	3	0	8	108	85	
Average 1905-1909	4619	28.3	627	134	4002	24.6	147	203	111	20	18	36	3.4	0.8	7	109	88	
1904	4885	30.5	733	151	4152	25.9	146	254	131	32	28	66	3	0	5	125	97	
1903	4986	31.5	675	135	4311	27.2	135	239	116	24	51	18	1	1	7	118	80	
1902	4814	30.8	657	137	4157	26.6	133	209	124	23	10	59	6	0	11	118	92	
1901	4784	31.0	727	152	4057	26.3	117	277	142	34	25	10	1	0	9	115	91	
1900	4810	31.8	717	149	4093	27.1	117	262	138	28	16	49	4	1	12	108	82	
Average 1900-1904	4855	31.1	702	145	4134	26.6	130	248	130	28	26	40	3.0	0.4	9	117	88	
Average ten years—1900-1909	4737	29.7	664	139	4068	25.6	138	225	120	24	22	38	3.2	0.6	8	113	88	

decline, varied, however, in the latter group by rises due to the effects of epidemics of measles and whooping cough, which ever bring in their train numerous cases of lung inflammation.

The three Health Visitors of the Corporation continue to carry on their work with much efficiency. The great reduction in the rate of infantile mortality is no doubt in some measure due to such work, assisted by the excellent voluntary service of the committee of the ladies who have organised and carry on so enthusiastically the Mothers' and Babies' Club.

The Notification of Births Act, which was adopted by the Town Council in the preceding year, has been found to be very useful in enabling the Health Visitors to reach quickly the mothers and babies requiring their attention. The Act is being worked with great smoothness and with, in all the circumstances, remarkable completeness. The methods employed to secure a full and early notification of the births were explained in the report for the preceding year. Out of 4,299 live births occurring in the city during the year, notification of 75 per cent. of them reached the Public Health Department within 48 hours from the time of the birth, 14 per cent. within 4 days, and 3 per cent. within 7 days. As regards the remaining 8 per cent., a note was sent to the parents informing them of their obligation to notify, and of the penalty which they had incurred. This note was immediately followed in seven-eighths of the cases by a notification, accompanied by an apology or explanation.

The subjoined table shows that the notification of the live births, in 34 per cent., or about one-third of the whole, was made by the parents; in 43 per cent. by the medical attendant; in 15 per cent. by the midwife or nurse; and in 8 per cent. by the parents and the medical attendant or midwife.

BIRTHS NOTIFIED IN 1910 UNDER THE NOTIFICATION OF BIRTHS ACT.

(Total Live-Births registered by Registrars—4319.)

(Including 23 in City Poorhouse, outside City Boundary, and not Notified.)

NOTIFIED BY	LIVE-BORN.					STILL-BORN.				
	Within 48 Hours.	4 Days.	7 Days.	Later.	All.	48 Hours.	4 Days.	7 Days.	Later.	All.
Parent	1,084	208	55	262*	1,609	36	6	1	—	43
Medical Attendant . . .	1,383	242	62	25	1,712	80	11	3	3	97
Midwife or Nurse . . .	468	116	8	4	596	33	6	1	—	40
Parent and Med. Attendant or Midwife	312	19	2	1	334	13	—	—	—	13
Med. Attendant or Mid- wife	2	—	—	—	2	—	—	—	—	—
GRAND TOTAL . . .	3,249	585	127	292	4,253	162	23	5	3	193

* Includes 220 Births Notified after reminder from Public Health Department.

As the Department continues to receive daily returns of the registered births from the several registrars, it is in possession of the means of checking the absence of any notification, but not in many cases until near the close of the period of three weeks allowed for registration. No such check exists for still-births, which, of course, are not yet registrable. The table gives information also in regard to the notification of still-births, and it will be seen that almost exactly one-half of these were notified by the medical attendant, rather less than a quarter by the parents, and slightly above a quarter by the midwife or nurse.

Besides making a considerable number of domestic inspections for various health purposes, the Health Visitors called at the homes of 2,455 infants out of the 4,299 births within the city. These visits were, as usual, mostly confined to the smaller houses—that is, houses of one to three rooms. About two-thirds to three-fourths of all the births in such houses were visited. The infants visited were distributed as follows over the registration districts of the city:—

SIZE OF HOUSE.	St. Nicholas.	St. Machar (incl. E. Peterculter).	Nigg (Torry).	Wood-side.	Old Aberdeen	Total.	Breast-fed.	Hand-fed.	Percentage of Breast-fed in total Infants Visited.	
									1910.	1909.
1-Roomed . . .	243	94	26	6	—	369	336	33	91	93
2-Roomed . . .	778	534	191	75	19	1,597	1,371	226	86	84
3-Roomed and upwards	266	115	71	26	11	489	406	83	83	74
ALL HOUSES, 1910	1,287	743	288	107	30	2,455	2,113	342	86	83
All Houses, 1909	1,517	828	329	175	44	2,893	2,392	501	—	—

The proportion of infants visited was not quite so high as in the preceding year. This was partly due to the Department being without the services of one of the Visitors for some time, but mainly to the Visitors concentrating their visits upon a smaller number of children, and making, in each desirable case, a larger number of visits than in former years. An increasing part of their time was also devoted to visiting tuberculous cases and to the instruction and lectures given in connection with the Mothers' and Babies' Clubs.

It will be seen from the table that the proportion of breast-fed infants (91 per cent.) was slightly smaller in the one-roomed houses than it had been in the preceding year, but somewhat higher in the two-roomed houses—86 per cent. as against 84—and distinctly higher in houses of three rooms and upwards—83 per cent., as against 74. In all, the percentage of breast-fed infants among the infants visited was 86 in 1910, as against 83 in 1909. There is, I think, no doubt that this increase in breast-feeding is largely due to the instruction given by the Health Visitors and those working with them.

It is of interest to note that of the 2,455 cases visited, a medical man had attended the confinement of the mother in 1,268 cases, or slightly more than one-half, and that in 851 cases the confinement had been conducted by a midwife or nurse. In 209 cases, attendance was received in connection with the outdoor department of the Maternity Hospital, while in 127 cases the mother gave birth to her child within the Maternity Hospital itself. In 7 of the cases attended by midwives, the assistance of a medical practitioner was obtained by the midwife on account of difficulty in the confinement.

In the outlying districts of the city, such as Woodside and Torry, the proportion of cases of confinement attended by a medical practitioner was found to be much higher than in the middle of the city, being, for example, 83 per cent. in Torry and 84 per cent. in Woodside.

Included among the children visited throughout the city were 239 illegitimates. The proportion of breast-fed children among these was slightly above one-half. Rather more than a fourth of the illegitimate children visited had been born in the Maternity Hospital. An almost equal number had been attended by midwives. About one-third had been attended by a medical man, and the remainder were out-patients of the Maternity Hospital. In 142 of the cases, both mother and child were found to be in a satisfactory state of health, and required little attention from the Visitors. In 38 cases, the mothers' health was unsatisfactory, largely from deficiency of means; while in 59 cases the condition of the infant was not satisfactory—less, on the whole, from absence of means than from want of due care. In about one-half of the latter cases, the health of the mother, as well as of the child, was unsatisfactory.

In those cases where the mother was found to be in an indifferent state of health, or insufficiently fed, about three-fourths of the mothers were employed in mills or factories. There were very few servant girls in this class.

In the cases where the condition of the illegitimate child was not satisfactory, there was again a distinct preponderance of mothers who were employed in mills and factories, but there was also a considerable number of domestic servants.

Among the mothers of legitimate children, poverty contributed largely to the condition of the mother in those cases where her health was found to be defective and unsatisfactory. It was, however, interesting to find that although the large number of 651 mothers belonged to this category, the health and nutrition of their babies was satisfactory in nearly nine-tenths of the cases. The Association for Improving the Condition of the Poor and similar organisations proved to be of great help in the assistance of many of these poorer mothers, but even after the aid derivable from these sources had been fully exhausted, there was still large room for further help. The scarcity and irregularity of employment during the last few years has naturally told heavily against many of the poorer mothers.

In only 104 of the cases visited, where the children were legitimately born, was the health condition of the child such as to give occasion for distinct anxiety. Among these children, about two-thirds were breast-fed, or considerably under the proportion for children found to be healthy. In not one of these cases was the

mother herself found to be in a really good state of health, and several were in bad health. The father's employment was, in three-fourths of the cases, irregular, and in a still larger proportion the means of the household were defective or insufficient. In many of these households it is pleasant to be able to note that cleanliness was not being neglected. Indeed, in only 5 per cent. was it bad.

In about 131 infants the health was good, but the nutrition was deficient. In all these cases the nutrition of the mother was also deficient, due to defective means. Here also, as in the preceding group of cases, the irregularity of the employment of the father was the main source of the poverty of the household, although both in this group and the preceding groups this irregularity was in too many cases dependent on the habits of the father. In fully one-third of the cases, employment was regular and wages good, but in many of them the earnings were not well expended, and were sometimes largely wasted.

The work of the Health Visitors among infants continues to be much appreciated by mothers, and is proving of great value, not only in increasing the interest of the mother in the proper care of her infant, but also in raising the standard of cleanliness and ventilation, and of sanitation generally, in the houses of the poorer classes, and, indirectly, throughout the whole city.

As has been acknowledged in preceding reports, the Health Visitors are receiving invaluable aid from the Mothers' and Babies' Club and from a number of voluntary lady visitors. The club, which was opened in the spring of 1909 in rooms within the New Porthill School, Gallowgate, has continued its work with increasing zeal and efficiency. It owes all its success to the committee of ladies in charge of it, and especially to the President of the Committee, Mrs. G. B. Esslemont, and the Honorary Secretaries, Miss Jean Croll and Miss Macmillan. The club meets with the mothers and their babies once a week. Expectant mothers are eligible for membership, as well as mothers with babies. The average attendance during the past year was about 80. Lectures continue to be given by Miss Macmillan, the senior Health Visitor, and by Mrs. Livingston, the latter devoting her lectures to instruction in cookery. Each member pays one half-penny per week for membership. At the commencement of each meeting the mothers are provided with tea and a biscuit, the expense of which is met partly from the membership fees, but mainly by donations from the Committee and other workers connected with the club. This is followed by a lecture on cookery or on health, especially the care of infants, and by the weighing of the babies. Dr. Smart has recently undertaken duty as honorary physician, and assists the ladies in any case in which his services are required.

The weighing of the babies is a valuable feature of the work, not only as a measure of the progress of the baby, but as a means of increasing the interest of the mothers, who are always greatly pleased when they find, as the result of paying attention to the instruction received, that the baby begins more rapidly to increase in weight.

A Provident Fund has been instituted, and is regarded by the Committee as one of the most important and successful branches of its work, as mothers are

encouraged by it to make provision for their confinement. Complete outfits are supplied for babies at a small cost, which is paid in weekly instalments. All the garments are made by the voluntary workers.

Cradles made from banana crates are supplied by the Committee. Lined, and furnished with bed, pillow, and small blanket, they are sold for the small sum of one shilling. A large number of these have been disposed of since the club was opened.

I am glad to be able to report that the success of the club in its rooms in the Gallowgate has led to the formation of a branch club in Woodside early in 1911. The branch is managed by a local Committee, who are in touch with the Central Committee. This club has made an excellent beginning. There is still room for a considerable number of additional branch clubs, for example, at Footdec, Denburn, Ferryhill, Torry, and Old Aberdeen. It is to be hoped that ladies in these districts will be found willing before long to follow the good example set by the ladies of Woodside.

The club has been much helped in its work by a contribution of fifteen guineas from the Town Council. The organisation for providing voluntary assistants to the Health Visitors in visiting babies and mothers in their own homes is worked by the Committee in charge of the Mothers' and Babies' Club, but is a separate department. About thirty such visitors are now giving much valued assistance to the Health Department, but there is room for at least twice or three times this number if all the work that lies to the hand of the Department in respect of the care of babies, is to be properly overtaken.

The Health Department is greatly indebted to the Committee in charge of the Mothers' and Babies' Club and to the workers and visitors provided by it.

Towards the end of the year I addressed a circular letter to each of the clergymen in the city for the purpose of calling their attention to the work of Baby Clubs and to the need for additional voluntary visitors, in the hope that he would see his way to bring the work under the notice of such ladies in his congregation as would choose to offer their assistance. The letter was followed by a visit to each minister by a deputation from the Ladies' Committee.

During the year I devised a simple, but, I think, adequate and convenient form of sterilising can for use by mothers in sterilising the milk of such infants as are artificially fed in whole or in part. The Town Council was good enough to place a sum of £20 at the disposal of the Public Health Committee for the gratuitous supply of such cans to poorer mothers. The can, with measure, costs 1s. 3d. A detailed set of instructions accompanies each can. I am of opinion that the dangers of sterilised milk have been much exaggerated, and that the advantages far outweigh the dangers attaching to the use of unsterilised and possibly contaminated milk.

*Mortality at "Pre-School" Age-Period (1 to 5 years).—*The number of deaths at these ages during the past year was remarkably low, being only 167, as against an average of 261 for the preceding five years. This was largely due to a great

drop in the deaths from zymotic diseases, especially measles and whooping cough. There was also a marked diminution in the mortality from tuberculous diseases and from bronchitis.

It is satisfactory to observe that the section of the Children Act which compels the provision of fireguards for the protection of children has apparently had some effect in reducing the number of deaths from burns and scalds, as there were only 6 deaths from these causes during 1910, as against an average of 9 in the preceding five years. There remains, however, ample room for improvement.

*Mortality at the "School" Age-Period (5 to 15 years).—*The mortality at this age-period (2·9 per 1,000 of population at the particular age) is under that for each of the preceding two years, but is slightly above the average (2·8) for the preceding five years. The mortality at this period has been practically stationary during the past ten years, although it was as high as 9·3 in the first quinquennium of registration and gradually fell to its present level. It will be of much interest to note whether the large amount of attention now being given to the health of school children by the School Board is to bring about a further reduction in the mortality at this age-period. The rate is already so low that there is not much room left for reduction.

The work of the medical staff of the School Board, which was begun shortly after the commencement of the year under review, has been carried on with great vigour, and cannot fail to be of distinct benefit not only to the present health of the children, but to their future health, although the full effect of it may not be reflected in the mortality rate.

Among other matters that have been taken up by the medical inspection department of the Board is the cleansing of verminous children and of the households to which they belong. After some negotiation, an arrangement has been arrived at between the Town Council and the School Board, under which the inspection of the household of the verminous child, as well as of the child itself, is being undertaken by the Board. A special lay inspector has been appointed by the Board to visit the houses of verminous children. In those cases where the whole inmates of the house and the bedding and clothing are found to be infected with vermin, the inspector arranges for the removal of the whole family to the disinfecting and cleansing station belonging to the Town Council. A building has been set apart at the station for receiving such persons, and a married couple have been provided by the Council to look after the inmates of the building and to carry out the cleansing and disinfection, with the aid of a special steam disinfecter. The whole clothing and bedding of the household are removed for disinfection, and the house itself is thoroughly cleaned and fumigated with sulphur. Sulphur is employed in preference to other fumigants as being more powerful in killing insects, although less effective in the destruction of micro-organisms.

In those cases where the school child alone is verminous, or, at least, where the house is clean, and the verminous condition more or less accidental, the cleaning of the child is left to the parents, who are provided with the necessary disinfectants.

If the condition of the child is such as to warrant its removal to the cleansing station for more thorough cleaning, this is done; but where this more drastic proceeding is required, it is frequently found that the whole household has to be dealt with if any proper attempt is to be made at extirpating the vermin. It is of little use merely to clean the child, however thoroughly the cleaning may be done, if the child returns immediately afterwards to a home that is still vermin-infected.

The agreement referred to was entered into during the current year, but the Public Health Department had been carrying on similar work in friendly co-operation with the Board for the greater part of 1910.

As the arrangement now in force between the Council and the Board is somewhat novel, it may be of general interest to reprint the terms of the agreement.

"Heads of Agreement between the Town Council and the Aberdeen School Board."

"1.—The School Board to undertake the inspection of verminous children and the households of their parents or guardians, and to provide the necessary inspector or inspectors.

"2.—The School Board to inform the Public Health Department of the Town Council of such children or households as, in the opinion of the Medical Officer of the School Board, require to be cleansed and disinfected by the Public Health Department, and to indicate the extent of the cleansing and disinfection to be carried out, and to obtain the consent of the persons concerned.

"3.—The Public Health Department of the Town Council to undertake to carry out the required cleansing and disinfection, and to provide the necessary staff, conveyances, and apparatus, as also to give the necessary accommodation at their Disinfecting Station.

"4.—The whole cost of the inspection and cleansing and disinfection, and all expenses connected therewith, to be ascertained at the close of each year by the Treasurer of the School Board and the City Chamberlain, and to be borne equally by the School Board and the Town Council, it being understood that the Town Council will, meantime, not include any charge for the rent of premises and disinfecting apparatus.

"5.—In the event of any difference arising between the Town Council and the School Board as to the sums to be included in the statement of cost, or as to any other matter under this agreement, such difference to be settled by the Senior Sheriff-Substitute of Aberdeen, or, failing him, by the Sheriff-Substitute of Aberdeen next in order of seniority.

"6.—This agreement to terminate at 15th May, 1912, unless before that date the parties to the agreement arrange for its extension or renewal."

It is, perhaps, as yet too soon to judge of the lasting benefits from the work done under this agreement. In some cases, it has to be admitted that the household, in spite of thorough cleansing, has been found to be verminous within a month or two afterwards. On the other hand, there are many instances in which

the cleansing has apparently been followed by continuing results. One great advantage from the arrangement is its educational effect in shaming the parents of verminous families into an endeavour towards a higher standard of cleanliness. It is somewhat of a punishment, as well as of a disgrace, to be obliged to go to the cleansing station and to submit to the disinfection of their houses for vermin; but where the persons are lost to a sense of shame, the School Board have used their power under the Children Act to have the parents or guardians brought into Court for neglecting to clean their children. Already, more than one prosecution has been successfully instituted. It is largely through the fear of such prosecution that it has been found possible to persuade or compel all the members of a household—parents as well as children—to submit to be dealt with at the cleansing station. Surprisingly little difficulty is being experienced.

It may be of interest to reproduce a correspondence with the Local Government Board regarding the powers of a Local Authority to remove verminous persons to a cleansing station for disinfection. The answer of the Board is precisely what I anticipated:—

I.—From the Medical Officer of Health to the Secretary to the Local Government Board.—5th August, 1910.

“Sir,—The question of dealing with verminous children has arisen here as the outcome of the appointment of medical inspectors by the School Board. Both the Board and the Local Authority are anxious to do what they can to secure greater cleanliness among school children, but they feel that probably not much permanent good will be attained by cleaning the vermin-infected child alone without dealing at the same time with all the members of the household to which the child belongs, and with the house itself.

“I think it not unlikely that the Local Authority would agree to erecting premises for specially dealing with verminous children and families. There is, however, one obvious difficulty, and that is the doubt as to the power possessed by Local Authorities to remove verminous families to a cleansing and disinfecting station. There is, of course, complete power under the Children Act for dealing with a verminous child, but as regards the other members of the family, the only possible powers are, so far as I know, contained in the Public Health Act—apart from the power in the Cleansing of Persons Act to provide a cleansing station. It has been suggested that verminous persons might be regarded as persons suffering from an infectious disease within the meaning of, say, Section 54 of the Public Health Act, and that we could, therefore, compel their removal to a cleansing station or hospital and detain them there—say, for one night—until their bodies and clothing had been properly disinfected, and the house and bedding had also been disinfected.

“I am not aware whether the Board has been as yet asked to give any opinion on the subject, but it would be of great help to us to know whether it considers that verminous persons can be dealt with under Section 54. Of course, I am quite aware

of Section 40, dealing with filthy houses, but it gives no power for the removal of persons.

"If we cannot in some way, whether by moral suasion or by legal powers, compel the removal of verminous persons to a disinfecting station, it would materially affect our plan for any such station.

"I communicated some time ago with the Local Authorities of other large towns elsewhere to ascertain what they were doing in regard to verminous children, but I found that very little had been so far attempted, and that nothing had been done that could give us much guidance.—I am, Sir, your obedient servant, (Signed) MATTHEW HAY."

II.—Reply of the Board to the Medical Officer.—22nd August, 1910.

"Sir,—I have submitted to the Local Government Board your letter of 5th instant as to the treatment of verminous persons, and, in reply, I am directed to state that, so far as the Board are aware, there has been no case of a verminous person having been dealt with under Section 54 of the Public Health Act. From the fact that there is separate legislation for verminous persons, it may be doubted if a warrant could be obtained under that section for the removal of a verminous person who was not suffering from any disease ordinarily regarded as infectious.—I am, Sir, your obedient servant, (Signed) A. MURRAY, *Secretary*."

It appears to me desirable that the system of medical inspection now instituted by the School Board should, if at all practicable, be extended to all the schools in the city, whether private or public. The medical inspectors of the Board will rapidly acquire an experience in dealing with the hygienic requirements of children that would be of great value to every school. It is desirable that these requirements should be on the same high standard all over the city. There is undoubted scope for improvement in certain of the schools not under the management of the Board.

It is to be hoped that the School Board will be able to follow up its medical inspection by the institution of clinics, or the provision of suitable treatment for such cases as may not be brought under the notice of the private medical attendant of the family to which the child belongs. A special clinic for dentistry could not fail to be of great benefit to the health of many of the children. Unfortunately, no part of the body is so liable to decay as the teeth, even in early life, and the decay is often associated with the presence of micro-organisms that may infect other parts of the body, such as the tonsils and the digestive tract, and thus prove a source of many small illnesses which, although not necessarily dangerous in themselves, render the body more liable to invasion by diseases of a more serious kind, or, by lowering the vital resistance of the child, make it more likely to succumb under the attack of such diseases.

Rapidly growing importance is being attached to the value of fresh air in the maintenance of health and in increasing the resistance to disease. For school children it is scarcely possible to exaggerate the advantages of thorough ventilation of their schoolrooms, not only during the intervals in which the rooms are not

occupied, but also during the whole time of occupation. Experience shows that a small amount of ventilation is often more productive of colds than a large amount. In the former case, there is a combination of foul air in the room with draughts from small ventilating openings that are distinctly favourable to the production of chills. Where the room is fully ventilated, or where the air of the room is always kept fresh, a large admission of air is found by experience to be much less hurtful. Moreover, the larger the ventilating inlets, the less is the velocity, as a rule, of the entering currents of air. We are now approaching a stage in the ventilation of schools when even the mechanical system of ventilation, which is so largely in use in this city, and which marked a great advance on the old system of ventilation that preceded it, may have to give way to a natural system under which air is allowed to enter freely at all times into schoolrooms by casement windows, kept open from top to bottom. Risky as it may appear to persons accustomed to the old methods of practically closed windows, the newer method of freely opened windows would be found, I feel sure from hospital experience, to be less productive of chills or catarrhs than any modified system. The only safeguard required is that in winter weather the children and their teachers should be more warmly clad than is the custom at present. In any case, whatever views may be entertained as to the free opening of windows in winter, there can scarcely be any doubt as to its advantages in summer, provided the windows are constructed so as to allow of it.

Closely connected with the provision of an abundance of fresh air in schoolrooms is the question of the provision of play and recreation grounds for children in sufficient number and in convenient places throughout the city. The playground attached to every school meets this want in some measure, but by no means adequately. There is, in my opinion, no more clamant want in this city than a generous supply of playgrounds or playfields. I have year after year in these reports drawn attention to this need, and I am glad to find that it is being much emphasised by those who are taking a leading part in the discussion of town planning throughout the country.

I have once more to express the thanks of the Public Health Department to those ladies and gentlemen in the city who provide a holiday in the country for a large proportion of the poorer and more ailing children of the city. Through the efforts of the Committee of the Children's Fresh Air Fortnight and the Aberdeen Camp for Ailing Children, 716 children were removed during the year to the country, partly to the home at Linnmoor owned by the former Committee, and partly to the camp on Scotston Moor belonging to the latter Committee. During the 22 years of its existence, the Committee of the Children's Fresh Air Fortnight has sent to the country no fewer than 9,058 children. The Scotston Moor Camp has been in existence for only six years, but has received during that time 954 children. There is no overlapping between the two Committees, and there is ample scope for more work being done than their limited means enable them to undertake. The gain to many ailing children is very great, and very obvious to those who see them before they leave and after they return.

Many poor children continue to receive much benefit from the feeding provided

for them during the winter months by the School Board from funds previously in charge of the Educational Trust and partly from voluntary subscriptions. During the winter of 1910-11, for a period of about four and a half months, the Children's Care Committee of the School Board, under the chairmanship of Mr. Burnett of Powis, provided out of the voluntary subscriptions—amounting to about £112—36,629 dinners to an average daily number of 420 children, distributed over six centres. The cost of each dinner was surprisingly small, varying from $\frac{1}{2}$ d. at the largest centre to $1\frac{1}{4}$ d. and $1\frac{1}{3}$ d. at the two smallest centres. This included the cost of service as well as of food. The Trust funds went to the most necessitous of the children, who, at a seventh centre, received two meals daily (breakfast and dinner) over a period of nine months, the average attendance being 330 at breakfast and 360 at dinner. There was also an eighth centre at Woodside, where the daily attendance was 46.

It pays every community to look after the health, as well as the education, of its school children. It is during this formative period that the basis of good or indifferent health is often laid down for subsequent life.

Mortality at the "Adolescent" Age-Period (15 to 25 years).—The death-rate at this period during the year (3·2 per 1,000 of population at this age), although not the lowest on record, is next to the lowest, which was 3·1 in 1907. Forty to fifty years ago, it was in this city fully three times as high as it now is, and there has been an almost steady and continuous fall down to the year 1907. This period and the "school" period form the two healthiest periods of life. Were it not for tuberculosis, the death-rate at the "adolescent" period would be reduced to less than one-half. It is entirely due to this disease that the death-rate at the "adolescent" period is higher than at the "school" period. I have remarked on the advantages of fresh air to school children. An abundance of fresh air is almost more necessary at the "adolescent" ages on account of the proneness to phthisis.

Although considerable advance has been made in recent years in the ventilation of workshops, there is still considerable room for improvement in such ventilation, and in the ventilation of offices and other places in which young people find occupation after leaving school. A large number of inspections are being yearly made in the city with the object of obtaining better conditions of ventilation in workshops. It has hitherto been found more difficult to deal with offices. Unfortunately, there is no legislation relating specially to offices as there is to workshops, although we have found it possible to deal with several offices under the general powers contained in the Public Health Act, but the absence of special reference to offices, unless they are to be regarded as a form of workshop, makes it less easy to impress employers with the necessity for remedying defects.

Offices are frequently too small for the number of persons employed in them. There is no standard laid down anywhere for them, but it is probably desirable that the cubic space for each occupant should never be less than 500 cubic feet. In ordinary workshops, the minimum fixed by the Factory and Workshops Act is only 250, but in many of the workshops, owing to the nature of the employment

TABLE V.—**ABERDEEN.**—MORTALITY AT VARIOUS AGE-PERIODS FROM VARIOUS CAUSES.
(Corrected for transferred deaths.)

AGE.	ALL CAUSES.	Zymotic Diseases.			Tuber- culous Diseases.		Respiratory Diseases.			Circulatory Diseases.			Nervous Diseases.		Dis. of Digest. Syst. incl. Diarrhoea.	Malignant Diseases.	Developmental Diseases (ex. old age)	Accident and Violence.	Debility, Atrophy, Inanition.		Miscellaneous.
		Ordinary.	Veneral.	Septic.	Phthisis.	Other Tuberculous	Pneumonia.	Bronchitis.	Other Respiratory.	Cerebral Haemorrhage, & Hemiplegia.	Other Circulatory.	Dis. of Urinary System.	Convulsions	Other Nervous.					Under age of 1 year.	Above age of 60 years.	
A.—NUMBER OF DEATHS—YEAR 1910.																					
Under 1 year,	478	23	14	1	1	11	53	22	0	0	1	1	42	9	68	0	136	6	71	...	19
Under 5 years,	645	55	14	2	2	40	90	35	2	1	1	3	48	15	89	0	137	15	71	...	25
5—15 „	103	17	0	2	7	17	2	1	2	0	17	4	0	3	12	0	0	7	...	...	12
15—25 „	109	3	0	2	44	17	4	0	2	0	7	1	0	5	6	1	0	10	...	...	7
25—60 „	590	6	1	4	119	8	31	19	6	31	111	41	0	39	29	62	0	41	...	...	42
60+ „	892	14	0	3	11	0	32	97	6	123	257	60	0	19	39	98	0	16	...	92	25
ALL AGES,	2339	95	15	13	183	82	159	152	18	155	393	109	48	81	175	161	137	89	71	92	111
B.—DEATHS PER 100,000 OF POPULATION AT EACH AGE—YEAR 1910.																					
Under 1 year,	10703	515	313	22	22	246	1187	493	0	0	22	22	940	202	1523	0	3045	134	1590	...	425
Under 5 years,	3149	268	68	10	10	195	444	171	10	5	5	15	234	73	434	0	669	73	...	...	122
5—15 „	289	48	0	6	20	48	6	3	6	0	48	11	0	8	34	0	0	19	...	...	34
15—25 „	321	9	0	6	130	50	12	0	6	0	21	3	0	15	18	3	0	29	...	...	21
25—60 „	946	10	1.6	6	191	13	50	30	10	50	178	66	0	62	47	99	0	66	...	...	67
60+ „	7169	113	0	24	88	0	257	780	48	988	2066	482	0	153	313	788	0	129	...	739	201
ALL AGES,	1419	58	9	8	111	50	96	92	11	94	238	66	29	49	106	98	83	54	...	...	67
C.—DEATHS PER 100,000 OF POPULATION AT EACH AGE—AVERAGE FOR TEN YEARS—1900-1909.																					
Under 1 year,	15493	1572	278	80	43	527	1297	1506	162	46	166	40	1182	394	2587	0	3606	237	1276	...	602
Under 5 years,	4796	813	66	20	38	309	505	424	61	14	44	15	308	152	685	1	787	110	...	...	192
5—15 „	291	38	0.6	3	40	61	17	4	3	1	21	7	3	20	26	2	1	20	...	...	23
15—25 „	411	18	0	9	166	33	27	3	5	1	33	9	0.6	21	31	4	0.3	19	...	...	33
25—60 „	1159	29	3	27	208	25	88	48	22	58	179	45	0.5	68	71	122	0.2	65	...	...	85
60+ „	6594	161	6	49	81	9	363	816	107	866	1594	305	3	231	383	628	0	132	...	734	272
ALL AGES,	1690	136	9	19	140	68	134	134	26	90	209	47	40	71	152	96	97	56	...	...	88

and the construction of the premises, a more ample ventilation is usually in force than in offices. The occupants of offices, however, are often themselves to blame in not making a more ample use of the means of ventilation obtainable by the windows. The same remarks apply here as to schools, although, owing to the variety of age among the occupants, it is more difficult to secure the free ventilation that is desirable. I had occasion last year to deal with the mortality from phthisis in relation to occupation, and pointed out the considerable excess of deaths from pulmonary tuberculosis among clerks—the death-rate from this disease being about twice as high as among persons of a similar age in the town generally. There can be no doubt that these deaths might be largely prevented by greater space in offices and by a more abundant use of ventilation, conjoined with the cultivation of open-air exercises and games after work hours.

There is still room for effecting considerable improvement in the conditions under which many young people begin their life work at an age that is specially liable to the onset of one of the most insidious and dangerous of diseases. I have already laid stress on the importance of a healthy school life in the building up of the health in subsequent manhood. Equal stress must be laid on a healthy adolescence. The cases of pulmonary tuberculosis that terminate during the period of adolescence form probably only a small proportion of the cases that begin during that period and end at a later stage. The death-rate from tuberculosis at the “adolescent” period is, therefore, not a full measure of the prevalence of the disease. Improved health at this period would almost certainly be followed by a diminished death-rate from tuberculosis at nearly all subsequent age-periods.

I have on more than one occasion referred to the almost certain advantages of applying, in connection especially with workers in offices, the principles of the Daylight Saving Bill. Even if the Bill is not passed by Parliament, there is no reason why an agreement might not be come to in any single community like that of Aberdeen, without altering the hands of the clock as proposed in the Bill, to arrange for the day’s work commencing an hour earlier during summer, so that it may end an hour sooner, and thus allow a larger time for the open-air recreation of those engaged in sedentary occupations. In the Public Health Department this arrangement was made during the past summer, and was much appreciated by the whole staff.

*Mortality at the “Mature” Age-Period (25 to 60 years).—*The mortality at this age-period (9·5 per 1,000 of the population at the particular age-period) is distinctly the lowest on record, the next lowest being 10·4 in 1906. In 1861-65, the average rate was 16·3. The decline at this age-period is not so great as at the “school” and “adolescent” periods, but as the “mature” period, as used in these reports, extends to the age of 60, it includes years in which several causes of death come into operation that are probably not so amenable to hygienic control as those affecting the earlier years of life. The fall, therefore, is gratifying, and shows that persons at this important productive age-period are continuing to enjoy a considerable share of the benefits accruing from improved hygienic conditions, interpreted in

their broadest sense. It also shows, what is of considerable practical and eugenic interest, that the greatly reduced mortality during the earlier periods of life does not seem to be followed by the escape from death of several weaklings in early life who might be supposed to survive only to swell the death-rate during the maturer periods of life.

I referred in the report of last year to the benefits that were likely to result from the scheme of Invalidity Insurance, which, it was then understood, the Government were about to submit to Parliament. This scheme is now embodied in the National Insurance Act, the provisions of which are such that, subject to the adjustment of administrative details, they cannot fail to be of essential service to the insured persons, and to the whole public health of the nation. It is sincerely to be hoped that satisfactory terms will be conceded to medical men, without whose sympathetic co-operation the Act will, in its results on the public health, fall far short of the expectations of its authors.

*Mortality at the "Post-Mature" Age-Period (60 years and upwards).—*The death-rate at this age-period (71·7 per 1,000 of the population at the particular age-period) is one of the highest on record within recent years. In 1906, it was 60·8, and it has risen almost every year since that time. The increase of the mortality rate at this age-period would appear to follow naturally upon a decreased death-rate at the earlier age-periods, but the effect is not so simple as might at first be supposed, for if a larger proportion of deaths are postponed than formerly beyond the age of 60, there is also a larger population above that age on which the death-rate has to be calculated. Thus there may be a considerable increase in the number of deaths above 60 in proportion to the whole population without necessarily any increase in the death-rate among such persons.

The number of the population at the different age-periods for the last census is not yet available, and the mortality rate for each age-period given in this report is based on the proportion stated in the preceding census.

MORTALITY IN RELATION TO CAUSE.

(Tables IV., IV. (A), V., and VI.)

Tables IV., IV.(A), V., and VI. give details for the year, and afford also material for comparison with previous years.

All Ages.—The circulatory system is of all systems of the body that which is constantly undergoing the greatest physical strain, and, although not the first to give way in early life, supplies in later life, and for all ages taken as a whole, the largest number of deaths. During the past year, 548 deaths, or nearly one-fourth of the total deaths from all causes, were due to diseases of this system. The next system in respect of strain is the respiratory, and it stood next in order, with 329 deaths, or one-seventh of the total deaths. Tuberculous diseases came next, with 265 deaths, or 11 per cent., followed by diseases of the digestive system (including

diarrhœa), with 175 deaths, or 7 per cent.; malignant diseases, chiefly cancer, with 161 deaths, or also 7 per cent.; developmental diseases, with 137 deaths, or 6 per cent.; nervous diseases, with 129 deaths, or 6 per cent.; diseases of the urinary system, with 109 deaths, or 5 per cent.; and the ordinary zymotic diseases, with 95 deaths, or 4 per cent. of the total deaths. Then follow venereal diseases, with 15 deaths, and septic diseases, with 13 deaths. In 89 cases, or 9 more than last year, death was assigned to accident or violence; and in 163 cases to debility or atrophy, of which 71 were among children under one year, and 92 were among persons of 60 years of age and upwards.

The causes of death were, as usual, very unequally distributed over the various age-periods (Table V.).

Infant and Pre-School Age-Period.—Among children under 5 years of age, the principal cause of death was diseases of the respiratory system, with 127 deaths, or 64 fewer than in the preceding year. Next in order came developmental diseases, with 137 deaths; diseases of the digestive system (including diarrhœa), with 89 deaths; and the commoner zymotic diseases, with 71 deaths. Tuberculous diseases accounted for 42 deaths, as against 61 in the preceding year. In 15 cases, or 4 fewer than in the preceding year, and 12 fewer than in 1908, death was ascribed to accident, 7 being caused by burns or scalds.

School Age-Period.—In this, and especially in the next, age-period tuberculous disease usually stands above all others as a cause of death. During the past year, 24 deaths were ascribed to tuberculous disease among children of the "school" age. In the preceding year, there were 30 deaths from this cause. Next to tuberculous disease, came the ordinary zymotic diseases, with 17 deaths, and diseases of the circulatory system, also with 17 deaths. In marked contradistinction from the deaths at the "infant" and "pre-school" period, only 5 deaths were attributed to diseases of the respiratory system. There were 12 deaths from diseases of the digestive system (including diarrhœa), or 5 more than in the preceding year. There were 7 deaths from accident or violence, 1 of which was due to burning and scalding.

Adolescent Age-Period.—Of the 109 deaths at this period, 61, or more than one-half, were due to tuberculous diseases, as against 43 in the preceding year. The increase was felt in nearly all forms of tuberculous disease. The commoner zymotic diseases caused only 5 deaths, and diseases of the respiratory system, 6 deaths. Among other causes of death, diseases of the circulatory system were accountable for 7 deaths, diseases of the digestive system (including diarrhœa) for 6 deaths, and diseases of the nervous system for 5. There were 10 deaths from accident or violence, being precisely the same number as in the preceding year, but 4 more than in 1908.

Mature Age-Period.—Of the 590 deaths at this period, the largest number assigned to any one group of diseases was 142 to diseases of the circulatory system,

or nearly one-fourth of the whole. This is a slightly smaller number than in the preceding year. Tuberculous diseases came next, with 127 deaths, or almost exactly the same number as in the previous year. Diseases of the respiratory system were responsible for only 56 deaths, as against 83 in the preceding year; and malignant diseases for only 62, as against 81. Diseases of the urinary system caused 41 deaths, and diseases of the nervous system, 39. Deaths from accident and violence amounted to 41, or 9 more than in the preceding year, but 7 fewer than in 1908.

Post-Mature Age-Period.—Of the 892 deaths occurring at this period, 380 were certified as due to diseases of the circulatory system. Diseases of the respiratory system came next, with 135. The former have risen and the latter declined since the preceding year. Malignant diseases accounted for 98 deaths, or 1 less than in the preceding year. Diseases of the urinary system took a more prominent part than usual, causing 60 deaths, or nearly twice as many as in the preceding year. Deaths from diseases of the digestive system were fewer than in the preceding year, being only 39, as against 44; and so were also diseases of the nervous system, with 19 deaths, as against 27. Tuberculous diseases were certified as the cause of 11 deaths, as compared with 10. As in the preceding two years, infectious disease, in the form of influenza, caused at this age-period a much higher mortality rate than infectious diseases at any earlier age-period, except the “infant” and “pre-school” period. Accident and violence caused 16 deaths, or 5 more than in the preceding year.

VARIATIONS IN THE MORTALITY FROM SELECTED CAUSES SINCE 1856.

The variations in the mortality from selected causes at all ages since the year 1856—the second year of civil registration—can be conveniently followed in Table VI.

The total mortality from the more common *infectious diseases* was slightly under one-half of the average for the preceding five years, and was one of the very lowest on record. The variations in the mortality from the individual infectious diseases are referred to more particularly in the part of the report dealing especially with zymotic diseases; but it may be stated here that the mortality from measles and whooping cough was exceptionally low, while the mortality from diphtheria was considerably above the average of the past ten years. The mortality from scarlet fever and typhoid fever was also low, but not exceptionally low.

The mortality from *tuberculous diseases* is also separately dealt with in a later part of the report, but it may be mentioned here that, although the decline for the past year is not great, the rate is the lowest recorded. The fall since 1856 is strikingly great, the rate for all forms of tuberculosis being less than one-third of average for 1856-1860.

Cancer.—The mortality from *cancer*, it is gratifying to note, showed a distinct fall, as compared with any of the preceding three years, although it is still nearly

TABLE VI.—ABERDEEN.—DEATHS AT ALL AGES FROM SELECTED CAUSES
(per 100,000 of population).—Years 1856-1910.*

Year.	Smallpox.	Scarlet Fever.	Diphtheria and Membr. Croup.	Measles.	Whooping Cough.	Influenza.	Typhus Fever.	Typhoid Fever.	Tuberculous Diseases.		Dis. of Digest. Sys. (incl. Diarrhoea).	Cancer and other Malignant Diseases.	Bronchitis.	Pneumonia.	Dis. of the Circul. Sys. (excl. Cereb. Apopl. and Hemipleg.).
									Phthisis.	Other Tuberculous.					
1910, . . .	0	4	21	2	10	16	0	1	111	50	106	98	92	96	238
1909, . . .	0	8	20	20	69	17	0	3	110	54	121	111	110	136	211
1908, . . .	0	9	12	41	38	35	0	0	113	61	119	109	102	124	221
1907, . . .	0	3	12	22	50	14	0	4	117	71	109	111	116	120	185
1906, . . .	0	4	12	44	41	18	0	2	130	70	134	86	104	110	191
1905, . . .	0	7	6	21	21	21	8	2	125	59	155	90	124	133	205
Average 1905-1909,	0	6	12	30	44	21	1.6	2.2	119	63	128	101	111	125	203
1904, . . .	0	13	7	59	93	8	5	2	123	77	164	101	133	133	209
1903, . . .	0	8	8	74	27	14	0	2	145	65	186	84	144	116	220
1902, . . .	0	7	13	11	83	29	0	2	137	77	154	89	145	135	227
1901, . . .	0.6	6	10	41	10	27	0	10	132	79	196	95	162	124	220
1900, . . .	0	7	20	37	60	54	0	7	166	66	190	87	170	123	211
Average 1900-1904,	0.1	8	12	44	55	26	1.0	4.6	141	73	178	91	151	126	217
„ 1896-1900,	0	23	18	35	53	29	0.2	9	167	70	210	87	172	109	167
„ 1891-1895,	0.4	21	22	63	52	56	1.0	10	181	72	190	81	210	100	156
„ 1886-1890,	0.8	14	10	80	66	9	1.4	15	184	67	202	68	216	100	175
„ 1881-1885,	0.2	13	15	36	67	1	6	13	204	74	185	69	251	82	159
„ 1876-1880,	0.6	35	30	28	66	2	19	29	223	101	194	61	286	72	146
„ 1871-1875,	48	68	30	53	68	5	20	35	243	107	214	56	281	60	136
„ 1866-1870,	3.6	71	5	50	62	8	62	49	298	130	259	59	238	70	122
„ 1861-1865,	36	93	49	51	62	12	176		274	128	280	57	220	59	122
„ 1856-1860,	40	118	54	70	69	12	109		322	179	203	56	182	58	111

* Corrected for transferred deaths in 1904 and subsequent years.

twice as high as it was in 1856-1860. It is generally agreed among medical men that part of the increase is not real, being represented by improved diagnosis, but it is also agreed that this does not account for the whole increase. The increase is also in some measure due—but by no means wholly due—to a larger proportion of persons in more recent times dying at the higher ages, owing to the diminished death-rate at the lower ages, cancer being, as is well known, almost entirely confined to persons of middle age and upwards. The special Research Institutes, established in more than one part of the world, for the investigation of the causes and cure of cancer, have been busily pursuing their investigations during the past year, but no very important advance has been made beyond what has already been noted in these reports. The inherited predisposition to cancerous disease, which has long been recognised for human beings, has now also been established for lower animals. Heredity is, however, only one factor in the production of the disease. It means only that persons of a certain strain of descent are somewhat more liable or predisposed to cancerous disease than others. As the main inciting cause of cancer is some form of local irritation usually long continued, such as irritation of the tongue from a bad tooth, or of the stomach from chronic indigestion, or of the lower part of the bowel from chronic constipation, it is desirable even for persons with no family history of predisposition to the disease to avoid, as far as possible, the continuance of such irritation by having early recourse to medical advice. Where any suspicion of actual cancer exists, surgical advice should be obtained without delay. No medicinal remedy has yet been found for cancer, although in a very few cases the disease has apparently ceased to be active, or has even disappeared under medicinal treatment; but this may have been a mere coincidence, and in most of such cases the nature of the disease was not verified. Many lives have been lost in wasting time in trying medicinal cures. The best medical and surgical opinion of the present day is practically unanimous in recommending the surgical removal of the disease so soon as it has been definitely recognised. With the great advances in modern surgery, such removal can in almost all cases be undertaken at an early stage with little or no risk to the life of the patient, and the disease can be so thoroughly eradicated that the fear of its recurrence is greatly lessened. If the disease is allowed to advance to later stages, the necessary operation becomes more extensive, and consequently more serious, and is, after all, frequently ineffective in removing all the ramifications and deposits of the cancerous material.

Bronchitis is another common cause of death, but it claims a considerable number of victims among young children, as well as among persons of advanced age. It is interesting to observe that the death-rate from this disease last year (92 per 100,000 of population) is the lowest on record, and was almost exactly one-half of the rate in 1856-1860. The death-rate from this disease, however, increased for several years after the commencement of registration, and reached its greatest height in 1876-1880, when it was fully three times the rate for the past year. Counting from that quinquennium, the mortality from bronchitis has, therefore, fallen to about the same extent as the mortality from tuberculous disease or from phthisis,

but the rate in the latter case has exhibited an almost continuous decline since 1856-1860.

It has to be noted that the fall in the death-rate from bronchitis last year was entirely due to a greatly diminished number of deaths among young children. The deaths among persons of advanced age were slightly more numerous than in the preceding year.

The causes of bronchitis are not yet fully understood. Recent investigations suggest that certain micro-organisms are associated with it. Probably some depression of the vital resistance from chills, especially after breathing the foul atmosphere of overheated, overcrowded, and ill-ventilated rooms, gives such germs a favourable opportunity for their growth. Some cases of so-called chronic bronchitis are almost certainly of tuberculous origin.

Pneumonia.—There has been a still more remarkable drop in the death-rate from *pneumonia* during the year under review. The rate was only 96 per 100,000, as against 136 in the preceding year. Differing from the death-rate from bronchitis, the rate from pneumonia has been almost steadily mounting since 1856-1860, and had reached in 1909 the highest point on record, being then nearly two and a half times as high as it was in 1856-1860. The fall to 96 reduces the rate, however, to about the level at which it stood twenty years ago. This fall may only be temporary. It was not, as in the case of bronchitis, confined to young children, among whom pneumonia, especially in the form of broncho-pneumonia, is a more common cause of death than among persons of middle age and upwards. The fall was experienced at all ages, and was even greater at the later than at the earlier ages. In the preceding year there was an unusual and suddenly arising increase of the deaths among infants in the last month of the year. No such rise was experienced during the past year.

The death-rate from *diseases of the digestive system* (including diarrhœa) also showed a considerable decline during the year, and was the lowest on record for any year since registration began, being only 106 per 100,000. In 1861-1865, this rate was 280, so that, like the rate from bronchitis and tuberculous disease, it has fallen to nearly one-third of what it formerly was. The decline last year was noticeable at practically every age-period, but especially among infants.

The death-rate from *diseases of the circulatory system*, excluding cerebral apoplexy and hæmorrhage, has, like the rate from pneumonia, grown considerably since registration began, being last year 238 per 100,000, as compared with 111 in 1856-60. It is, therefore, twice as high as it formerly was within the registration era. The rate last year is considerably above that (211) for the preceding year, and is the highest on record. The increase in the mortality from diseases of the heart and blood vessels may be in considerable measure due to the larger proportion of persons now attaining to ages beyond middle life. Although heart disease is met with at all ages, it is chiefly at the more advanced ages that it produces fatal results. It is not to be expected that the death-rate from these diseases will show any decline in the future, owing to the increase of the average age at death.

MORBIDITY AND MORTALITY FROM ZYMOTICS.

(Tables VII., VIII., and IX.)

Ward Distribution.—Table VII. gives the distribution of the commoner zymotic diseases as notified or discovered in the various wards of the city during the past year.

It will be observed that scarlet fever was most prevalent in St. Andrew's Ward, although only slightly less prevalent in Rubislaw, Ruthrieston, and St. Machar. It was least prevalent in Greyfriars and St. Clement's. For two years in succession St. Machar has had a high prevalence, and for three years St. Clement's has enjoyed a low prevalence.

Diphtheria was most prevalent in St. Andrew's and St. Machar, and least prevalent in St. Clement's and Woodside.

There were but few cases of measles in the city during the year, and more than one-half of them were confined to St. Nicholas and Rosemount Wards. There were no cases in St. Clement's and Torry.

Whooping cough was most abundant in Greyfriars, St. Nicholas, and Rosemount, and provided only a few cases in Ruthrieston, Woodside, and Torry. In other words, it was almost entirely confined to the central wards of the city.

The cases of typhoid fever were few, and were, as in the case of whooping cough, mainly met with in the central wards, chiefly in St. Andrew's. There were no cases in Rubislaw.

Epidemic cerebro-spinal meningitis yielded very few cases, two being in Ferryhill, and one in each of the two wards, Greyfriars and Torry. It is noteworthy that there were cases in each of these wards in the preceding year.

Erysipelas was most prevalent in Greyfriars and St. Andrew's, and least prevalent in Woodside.

Puerperal fever produced two cases in Woodside, and not more than one case in any other ward.

The wards chiefly associated with pulmonary tuberculosis or phthisis were St. Andrew's, Greyfriars, and Ruthrieston—the first two being east-end and mainly working-class wards of the city, and the third being a west-end ward, with however, a considerable working-class population. Rosemount, which occupied this unenviable position in each of the preceding two years, stood very near to these wards in the number of deaths from phthisis. The wards least associated with phthisis were Torry and Woodside, but the population of each of these wards is relatively not high. It is probable that a proportion of the deaths from phthisis in certain wards, the sanitary conditions of which are more modern and better than in the older and more central wards, may be in some measure due to phthisical persons removing to these wards after they have become ill, in order to secure the benefit of a purer atmosphere. The elevation of such a ward as Rosemount may also be an attraction.

Deaths from other forms of tuberculous disease were much more common in the central and crowded wards of the city than in the outlying wards. These deaths

TABLE VII.—CASES OF CERTAIN INFECTIOUS DISEASES NOTIFIED OR DISCOVERED—

YEAR 1910.

(Not corrected for transferred deaths.)

DISEASE.	AGE OF PATIENTS.			WARD OF CITY.*											Total Cases.
	Under 5 years	5-15 years	15+ years	Woodside.	St. Machar.	St. Andrew's.	St. Clement's.	Greyfriars.	St. Nicholas.	Rosemount.	Rubislaw.	Ruthrieston.	Ferryhill.	Torry.	
A. Compulsorily Notifiable.															
Smallpox	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever	{ Cases	181	413	80	44	76	84	36	27	52	63	79	78	63	72
	{ Deaths	4	2	1	...	1	...	...	1	1	...	2	...	1	1
Diphtheria.....	{ Cases	106	138	55	16	47	49	16	33	20	21	22	22	31	22
	{ Deaths	26	11	...	4	5	9	2	3	1	3	2	2	...	1
†Typhoid Fever	{ Cases	1	6	14	1	1	5	3	3	2	2	...	1	2	1
	{ Deaths	...	...	2	...	...	...	2	...	...	...	...	...	...	2
Typhus Fever	{ Cases	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	{ Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Erysipelas.....	{ Cases	9	4	146	9	14	19	12	20	18	15	13	13	15	11
	{ Deaths	...	...	2	...	1	...	...	...	...	...	...	...	1	...
Puerperal Fever	{ Cases	...	...	6	2	...	...	1	...	1	...	...	...	1	1
	{ Deaths	...	...	2	1	...	...	...	...	...	...	...	...	1	...
Epidemic Cerebro-Spinal Meningitis	{ Cases	1	3	...	...	...	...	1	...	...	...	...	...	2	1
	{ Deaths	...	1	...	...	...	...	...	...	...	...	...	...	1	...
B. Not Compulsorily Notifiable.															
†Measles	{ Cases	35	14	2	1	4	5	...	1	14	20	2	2	2	...
	{ Deaths	4	...	...	...	...	...	...	3	1	...	...	...	...	...
†Whooping Cough	{ Cases	121	113	...	2	21	35	20	48	42	43	6	1	12	4
	{ Deaths	16	2	...	...	3	1	2	5	3	2	2	...	...	...
Total	{ Cases	454	691	303	75	163	197	88	133	149	164	122	117	128	112
	{ Deaths	50	16	7	5	10	10	4	16	8	6	6	2	4	2
Tuberculous Disease—															
(a) Phthisis.....	Deaths	3	13	170	13	19	21	17	20	19	19	15	20	14	9
(b) Other Tub. Diseases	Deaths	41	20	30	3	12	12	6	12	10	12	5	9	5	5
Influenza	Deaths	7	...	20	1	2	3	2	1	2	3	3	2	4	4
Chickenpox ...	Deaths	...	...	...	...	...	...	...	...	...	...	...	...	...	...

* Deaths occurring in Hospitals are assigned to the Ward of the City from which the cases were originally removed.

† Compulsory notification of these diseases ceased in February, 1903.

‡ Including Para-typhoid.

are largely of children, and as the disease is present, for the most part, in other organs than the lungs, there may seem to the parents to be less necessity for change of residence to the more salubrious wards.

Influenza, as judged by the number of deaths, was, on the whole, fully more prevalent in the outlying wards than in the central wards. Influenza differs from nearly all other zymotics in being usually most abundant in sparsely populated districts. Thus the Registrar-General's records show that, in proportion to population, there have been many more deaths in the insular rural districts of Scotland than in the mainland rural districts, and more deaths in the latter than in the small towns, and more in the small towns than in the large towns. An explanation of part of the difference may be sought for in the less precise diagnosis of the more sparsely populated districts, in which the same amount of medical attendance cannot be expected as in town districts, but the difference is too great to admit of this being the sole explanation.

Monthly Distribution.—Table VIII. gives the incidence of each of the commoner infectious diseases throughout the months of the year.

Scarlet fever showed considerable variations in its incidence throughout the year, from 28 cases in May to 97 cases in October. Diphtheria began the year with a high prevalence—55 cases in January—but the number rapidly fell to 11 in May, and then began again to rise, reaching 30 in October. The cases of typhoid fever occurred mainly during the summer and autumn months, there being only 1 case in any of the winter months. The largest number in any one month was 6 in July. Measles was low in every month, the highest number being 16 in August, and the next being 8 in July. Whooping cough was very irregular in its incidence, the cases being more numerous in the first three months of the year and less numerous during the summer. The highest number was 44 cases in February, and the lowest was 4 in May. Erysipelas was most prevalent during the autumn and winter months. The cases of puerperal fever, which never exceeded 1 in each month, were, with one exception, confined to the second half of the year. The largest number of deaths from tuberculosis in any month was in March, with 37 deaths. The months with the smallest number of deaths were August and November, with 16 deaths each. As usual, the deaths from influenza were mainly confined to the colder months of the year.

Comparison with Preceding Years.—Table IX. contains a comparison of the prevalence of the various zymotics in 1910 with their prevalence in each of the preceding ten years. The average for these ten years, and for the previous decade, is also given. The number of sicknesses is stated for each disease, with the number of deaths, as also the case-mortality, or percentage of deaths to sicknesses.

Compulsory notification of measles and whooping cough was discontinued early in February, 1903. Since that time, information in regard to cases of these diseases has been obtained chiefly from the school attendance officers, and to a slight extent from voluntary information from parents. This affects the case-mortality

TABLE VIII.—INCIDENCE OF CERTAIN INFECTIOUS DISEASES DURING THE TWELVE MONTHS OF YEAR 1910.

(Not corrected for transferred deaths.)

DISEASE.	1910.												Whole Year.
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
A. Compulsorily Notifiable.													
Smallpox,	{ Cases	..	..	..	..	..	..	..	..	..	..	..	..
	{ Deaths	..	..	..	..	..	..	..	..	..	..	..	..
Scarlet Fever,	{ Cases	61	38	69	38	28	50	45	68	93	97	51	36
	{ Deaths	..	1	1	2	..	..	1	1	..	..	..	1
Diphtheria,	{ Cases	55	21	29	17	11	20	21	16	27	30	24	28
	{ Deaths	8	4	8	2	..	2	4	2	2	..	2	3
†Typhoid Fever,	{ Cases	1	1	1	..	3	..	6	3	2	2	1	1
	{ Deaths	..	..	..	..	..	..	..	1	..	1	..	..
Typhus Fever,	{ Cases	..	..	..	..	..	..	..	..	..	..	..	..
	{ Deaths	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas,	{ Cases	14	12	18	14	9	9	7	11	17	16	16	16
	{ Deaths	..	..	..	..	1	..	..	..	1	..	..	..
Puerperal Fever, ...	{ Cases	..	..	1	..	..	..	1	1	..	1	1	1
	{ Deaths	..	..	..	..	..	..	1	..	..	1	..	..
Epidemic Cerebro-Spinal Meningitis,	{ Cases	..	..	..	..	1	1	1	..	..	..	1	..
	{ Deaths	..	..	..	..	..	..	..	..	..	..	1	..
B. Not Compulsorily Notifiable.													
†Measles,	{ Cases	2	1	2	7	2	2	8	16	4	4	1	2
	{ Deaths	..	..	..	..	..	1	1	2	..	..	..	..
†Whooping Cough, ...	{ Cases	32	44	35	24	4	8	8	15	19	14	18	13
	{ Deaths	1	1	2	..	2	1	..	1	4	2	2	2
TOTAL,	{ Cases	165	117	155	100	58	90	97	130	162	164	113	97
	{ Deaths	9	6	11	4	3	4	7	7	7	4	5	6
Tuberculous Disease —													
(a) Phthisis,	Deaths	16	14	22	13	16	21	15	9	21	15	10	14
(b) Other Tuber. Dis.,	Deaths	10	6	15	12	5	10	6	7	4	4	6	6
Influenza,	Deaths	..	9	7	1	1	..	..	1	..	..	3	5
Chickenpox,	Deaths	..	..	..	..	..	..	..	..	..	..	..	..

† Compulsory Notification ceased in February, 1903.

‡ Including Para-typhoid.

from these two diseases, as since 1903 the cases intimated can only form a proportion—although a fairly large proportion—of the cases actually occurring. This naturally tends to heighten the apparent case-mortality, as it has to be calculated upon too small a number of cases.

The table shows that during the past year the total known cases (1,279) of the seven more common zymotics embraced in the table were almost exactly one-third of the average annual number (3,835) in the decade 1900-1909, and only about one-fourth of the average (4,676) for the decade 1890-1899. The most prevalent zymotic was scarlet fever, and was followed at some distance by diphtheria and whooping cough. Measles and typhoid fever came next, but with much smaller numbers.

Small-pox.—For three years there has been no case of this disease in the city, the last case being in 1907. Excepting this case, which was that of a foreign sailor, there have been none since 1904, and only 11, in all, during the last ten years.

VACCINATIONS.—Since the passing of the Vaccination (Scotland) Act, 1907, I have, by the authority of the Town Council, been obtaining quarterly from the registrars the number of children regarding whom the parents have declared formally that they had conscientious objection to their vaccination. The accompanying table (Table X.) shows the proportion of vaccinations to surviving children in 1907, 1908, and 1909, and, for comparison, in 1880, 1890, 1900, and 1906. The new Act did not come into operation until the later part of 1907, but it provided for a declaration being accepted in regard to children born previously who had so far remained unvaccinated. The numbers given for the years 1907, 1908, and 1909 apply, therefore, only to children born within the particular year. In addition to those included in the table, declarations were made on account of some children born before 1907. The table does not contain the figures for the year 1910, inasmuch as the Registrar-General allows one whole year to pass after the year in which the births occur, in order to give at least twelve months for carrying out the vaccination of each child.

The figures for vaccination given in the reports of the Registrar-General refer only to the vaccinations that have taken place within the year of birth and the subsequent year. It is, I think, to be regretted that the reports take no account of primary vaccinations that take place later, although these are registered by the local registrars and help to increase the proportion of vaccinated children. In a table accompanying this report (Table X.), these belated vaccinations have been included up to the present date. They add appreciably to the proportion of vaccinated children. For example, in 1907, the proportion of vaccinated children was 86 per cent. according to the Registrar-General's returns, but it becomes raised to 90 per cent. by the inclusion of these later vaccinations. Similarly, the proportion of vaccinations among children born in 1908 should be increased from 85 to 88 per cent., and, in 1909, from 85 to 86 per cent. But it is probable, in regard to the last year, that additional vaccinations will be registered for some time to come,

TABLE X.—ABERDEEN.—NUMBER AND PERCENTAGE OF VACCINATIONS.

	1880.					1890.					1900.					1906.					1907.					1908.					1909.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Whole City.					Whole City.					Whole City.					Whole City.					Whole City.					Registration Districts.					Registration Districts.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

* (a) Number from Registrar-General's Returns; (b) Number vaccinated after close of year following year of birth, and up to end of 1910.

and will thus still further raise the proportion, as in the preceding years. The corrections have not been made for the years previous to 1907.

When these adjustments are made, the decline in the proportion of vaccinations is not quite so great in this city as it might at first appear. Yet the number of conscientious objections has rapidly increased since the Act was passed. In 1907, there were only 82, but in 1908 there were 218; in 1909, 335; and in 1910, 373. The number of unvaccinated children has not, so far as Aberdeen is concerned, been reduced in proportion for the reason that the increasing number of parents who make the statutory declaration of objection is drawn only in part from the class that have been in the habit of consenting to vaccination, a considerable part coming from among those who have hitherto contrived in one way or another to avoid the vaccination of their infants.

Measles.—The year 1910 was a year of exceptionally low prevalence of this disease. Only 51 cases were brought to the knowledge of the Department. The high case-mortality of 7·8 per cent., which is more than twice the rate preceding the years of compulsory notification, point to the probability of only about one-half of the cases actually occurring having been made known to us. But even if the number be taken at 100, it is still relatively small. Not since 1891 have there been so few cases. In each of the intervening years the number has only thrice fallen below 500, and in nearly all the remaining years, except one, it mounted to 1,000 and upwards. The apparent high case-mortality since the stoppage of compulsory notification is obviously due to the partial information of cases of sickness alongside complete information of deaths.

Whooping Cough, which reached epidemic proportions in the preceding year, produced, relatively, only a small number of cases during 1910. Altogether, 234 cases were brought under the notice of the Department, as against an average of 1,247 for the preceding ten years. The number of deaths was 18, giving a case-mortality of 7·7 per cent. The mortality is, no doubt, higher than it should be, owing, as with measles, to the whole of the cases of whooping cough not being made known to the Department. The case-mortality in the ten years preceding the stoppage of compulsory notification was under 5 per cent.

MEASLES AND WHOOPING COUGH IN RELATION TO NOTIFICATION.—As has been frequently remarked in these reports, the average annual number of deaths from measles and whooping cough is very much greater than from all the other zymotics (excluding tuberculosis) taken together. During the ten years 1900-1909, the average annual number of deaths from these two diseases was 138, while the corresponding number of deaths from scarlet fever, diphtheria, typhoid fever, small-pox, and typhus was only 38. As I stated in my special report in 1903, when the compulsory notification of measles and whooping cough was given up, we had not been able to satisfy ourselves that anything could be done to stay effectively the spread of either of these diseases, but it does not follow that properly directed effort might not succeed in reducing considerably the mortality. As bearing on the question of the spread

of the disease not being influenced by the absence of compulsory notification, I may point out that, during the eight years that have elapsed since compulsory notification ceased, 457 deaths from measles and 571 deaths from whooping cough have been registered. During the eight years preceding the stoppage of compulsory notification, the total number of deaths from measles was 517, and from whooping cough, 635. The deaths from each disease have, therefore, been fewer than during the period of notification, and this in spite of the increase of population. But notification is only a means to an end; and in determining the value of notification one must consider what steps have been taken during both periods to control the disease. During all the years since notification began in 1882 up to the present day, practically every known case of measles has been visited, and printed instructions have been left with the parents as to the precautions to be taken, and as to the danger of the disease. Isolation has, so far as possible, been insisted upon, but it must be admitted that the isolation has often been useless, owing to the smallness of the house and the inability to provide proper nursing arrangements, and also to the indifference exhibited by parents towards the disease. Not many cases have in any period been removed to hospital, owing, chiefly, to the lack of accommodation. Such removals during the eight years preceding the stoppage of compulsory notification amounted, for measles, to 1,451, and during the subsequent eight years to 283. The number of cases of whooping cough removed to hospital has always been small, and is practically negligible. The smaller number of removals during the period since notification ceased has apparently not increased the death-rate. It is not unlikely, however, that, apart from the effect of hospital treatment in what was after all a small proportion of the cases, the general improvement in recent years in the health of the people, as shown by the diminished death-rate from all causes, has been promoting a reduction in the mortality among cases of measles and whooping cough, as also among cases of scarlet fever. From observation of the few cases of measles treated in hospital and of cases treated in the poorer homes, one can scarcely fail to be convinced that a more liberal removal to hospital of cases of measles, and probably also of cases of whooping cough, would materially reduce the mortality. This is a belief which, I think, is shared by all medical officers of health and superintendents of fever hospitals, and is, indeed, now beginning to be acted upon in a few towns.

In a detailed analysis of our experience of whooping cough under compulsory notification, published in these reports in 1901, and in a similar analysis for measles published in 1904, the very high case-mortality for each disease among children under two years of age was clearly brought out, as also the very low mortality at ages above five. At ages under two, the case-mortality for each disease was found to be about twenty to twenty-five times as high as at ages above five. Thus, during the ten years ending 1900, there were altogether 4,883 notified cases of measles among children under two years of age, and of these, 495 died, or about 1 in every 10 cases. At ages above five, there were, during the same period, 10,318 cases, with only 39 deaths, or about 1 in 260. The corresponding figures for whooping cough during the same period were 4,819 cases under two years of age, with 548

deaths, or about 1 in every 9 cases; and 4,040 cases above five years of age, with 20 deaths, or about 1 in 202.

As to cases between the ages of two and five, there were 9,271 cases of measles, with 145 deaths, or about 1 in every 64 cases; and 6,234 cases of whooping cough, with 154 deaths, or about 1 in 40. In both diseases the deaths were mainly of children under three, and especially of children under two.

It is plain, therefore, that if some effective means could be devised for dealing with the children under three, or even under two, years of age, either by devising means for their protection against measles or whooping cough when it invades a family, or by securing for them proper care and treatment after they have taken the disease, a very substantial saving in the lives of young children might possibly be reached. No scheme for the protection of the children seems to be quite feasible. It is scarcely a practicable suggestion that, on the appearance of the disease among the older children of a family in which isolation is impossible, the members under two or three years should be removed to a reception house and kept there until the outbreak in the family had run its course. Mothers would, I fear, offer strenuous objection, and extensive accommodation would be needed. It is true that the figures given above show that the number of cases among children above two years of age was, for measles, four times as high as among children under two, so that by a method of isolating the uninfected young children, in place of isolating the infected older children, only one-fourth of the hospital accommodation would be required; but there would still remain the difficulty of the disease breaking out among the young children so removed, and communicating itself freely in the reception wards. This might, however, be less of an objection when it is kept in mind that the cases would be much better circumstanced than at home, in regard to nursing and treatment.

In regard to the question of separation from the mother, it is of interest to note that out of the 952 deaths from measles occurring during the first two years of life, only 83 of these were among children under 6 months old. It might, therefore, not be necessary to remove babies of that age.

An alternative scheme is to remove to hospital as large a proportion as possible of the attacked children under three, or at least under two, years of age, leaving the older children, for the most part, to take their chance of recovery at home. Deducting the children belonging to better-class families, I estimate from a survey of the notified cases during the years of compulsory notification of measles that it probably would not have been necessary to treat in hospital at any one time more than 150 to 200 patients, except in one year, when 50 more beds would probably have been required. It is, of course, more easy to provide hospital accommodation for measles than for whooping cough, owing to the much shorter period of attack of the former. The figures given refer to measles. Any proposal for the hospital isolation of measles or whooping cough would be much simplified were it not for the not infrequent simultaneous occurrence of epidemics of more than one zymotic.

Meantime this, at least, is clear, that it is our duty to educate, year after year, the public to the great danger of measles and whooping cough for young

children. Scarlet fever is still in many families more dreaded than these two diseases; but although this dread was, more or less, justified by the high mortality of scarlet fever about forty to fifty years ago, it is no longer warranted. During the ten years ending 1909, in which there were 590 deaths from measles and 788 deaths from whooping cough, there were only 114 deaths from scarlet fever.

Scarlet Fever.—Although not so prevalent as in each of the preceding two years, this disease was above the average in prevalence during 1910, the cases amounting to 674, as against an average of 528 in the preceding ten years. During the past three years, there have been 2,965 cases. Only once, since notification began in 1882, have so many cases of this disease been notified within three years. The three years with the greatest number of cases were 1896-8, when 3,807 were notified. The case-mortality was much higher in these years than in the three years 1908-1910.

The most striking feature of scarlet fever in this city during the past four years has been its exceptional mildness. Last year, the case-mortality amounted to only 1 per cent., the average for the four years being 1.1. In the first five years of compulsory notification, the average case-mortality was 3.6 per cent.

The fall in the case-mortality of scarlet fever—a fall which is not confined to this city—has been attributed in some measure to the increasing degree of hospital isolation of the disease. It is difficult not to believe, from an observation of the cases treated in hospital, that some of the patients survive who would, if treated at home, have succumbed. At the same time, it has frankly to be admitted that an unprejudiced consideration of the statistical data for this city does not bring out any marked relation between hospital isolation and reduction of case-mortality; although it is quite true that the mortality among hospital-treated cases has nearly always been considerably lower than among home-treated cases. But there are other factors that have to be considered in comparing the two classes of cases. For example, a severe and rapidly fatal case may die at home before there is time for its removal. The following figures give, for successive quinquennial periods since notification began, the percentage of notified cases removed to hospital compared with the case-mortality for the whole notified cases, whether removed or not:—

Five-year periods.	Total notified cases.	Percentage of notified cases removed to hospital.	Case mortality among all notified cases (deaths per 100 cases).
1882-86	2,144	35	3.6
1887-91	2,492	57	3.6
1892-96	4,116	62	3.7
1897-1901	3,228	78	3.3
1902-06	1,741	83	3.5
1907-10 (4 years)	3,455	85	1.2

In 1910, the percentage of cases removed to hospital was 91. It may be suggested that, with the great mildness of the disease during the past four years, several cases have escaped notification. This is not improbable, and the case-mortality in these years, low as it is, may, therefore, be even lower than is stated

above. There is no reason, however, to suppose that this correction requires to be made for previous quinquennia, except, perhaps, in the first quinquennium, when, owing to the novelty of notification, some time would naturally elapse before the notification approached completeness. The case-mortality in the first quinquennium is probably, therefore, somewhat too high. One would expect that, if hospital isolation has been largely influencing the case-mortality, the latter should have been undergoing a gradual reduction with the steady increase in the proportion of patients removed to hospital.

A comparison of the figures given above shows, however, that there was no substantial alteration of the case-mortality during the first twenty-five years of notification, that is, from 1882 to 1906, although during that time the proportion of cases removed to hospital had gradually risen from 35 to 83 per cent. In the last four years, the percentage of cases removed was 85, but this small increase can scarcely be held to account for the extraordinary drop of the case-mortality in these years.

It may be urged that, although the case-mortality remained for many years substantially unaffected by an ever-growing proportion of cases receiving hospital treatment, it might have happened that, had there been no hospital treatment, the case-mortality would have steadily risen because of an increasing severity of the disease. We know that the type of scarlet fever does vary considerably through long periods of time, apart from therapeutic or sanitary measures.

An answer to this criticism might be found in the case-mortality among cases not removed to hospital. Has the mortality among these been increasing in this city during the past thirty years? I have worked it out, and find that it has, on the whole, increased except during the last four years—the percentages for quinquennial periods since 1882 being 3·9, 4·8, 5·9, 4·7, and 8·0, with 1·2 for the last four years. But it may be said that the proportion of rapidly fatal cases among home-treated cases—that is, of cases dying before admission could be arranged—grew as the proportion of removals among the total notified cases increased. This would, of course, happen without any actual increase in the number of such severe cases.

The problem is a somewhat difficult one to solve correctly, although, as I have already said, it is impossible to visit a large fever hospital daily without feeling that here and there a case has so hard a struggle for life that only the most careful nursing and treatment, such as a properly equipped hospital can best give, could have saved the patient's life.

But even if the hospital treatment of scarlet fever saves fewer lives than is usually supposed, it probably renders important service in diminishing the risk of the occurrence of serious complications, which, although not causing death, may have a crippling effect on health for many years subsequent to the recovery from scarlet fever itself.

I hope in the next annual report to give a full analysis of all the cases of scarlet fever occurring in Aberdeen since notification began, such as I have given for measles and whooping cough in former reports.

Diphtheria, coincidentally with scarlet fever, has been unduly prevalent within the last three years. In 1910, 299 cases were notified. This is the largest number recorded in any year since notification began. The next two largest numbers are in the preceding two years, namely, 1909, with 291 cases, and 1908, with 280 cases. The experience of Aberdeen is not singular in this respect. Almost everywhere throughout the United Kingdom there has been an increase of diphtheria in recent years. The increase cannot be wholly attributed to the growing use of bacteriological methods in diagnosing the disease. Such methods have, it is true, been mainly helpful in the diagnosing of doubtful and mild cases. But the deaths from diphtheria show by their increase that the more severe cases have multiplied considerably. Last year there were 37 deaths from diphtheria, as against 35 in the preceding year and 21 in 1908—or, in all, 93 deaths within the three years. In the preceding three years, 1905-1907, there were 47 deaths, and in the three years 1902-1904 there were 45.

It is doubtful whether the apparent increase of diphtheria is due to an increased prevalence or to a higher case-mortality. Diphtheria, even more than most other zymotics, varies greatly in its intensity in different cases. Many cases are so mild that they are regarded merely as cases of "sore throat," and are never notified, and, indeed, are frequently not brought to the notice of the medical practitioner. But whether we have to deal with an increasing prevalence or an increasing virulence, it is very difficult to account for either. Within recent years, in this city, a distinctly larger proportion of cases of diphtheria have been removed to hospital. Last year it was 92 per cent.

As regards the relation of the cases to schools, the distribution of the disease among the various schools was more unequal than in the preceding two years. In each of these years no single school showed any great preponderance of cases. In 1910, out of 122 cases among children attending school, 15 were of children at Ferryhill School, 13 at Sunnybank, 11 at King Street School, 8 at each of three schools, namely, Kittybrewster, Frederick Street, and Mile-end. At the remaining 29 schools with which cases were associated, the highest number in any one school was 6, and in each of 16 schools there was only 1 case. In 120 cases, the patients were under school age. It is of interest to state, as indicating the degree of infectiousness within single families, that the total number of families invaded by diphtheria during the year was 277, of which 258 families had only 1 case; 16 families, 2 cases; and 3 had 3 or more cases.

The Public Health Department continues to supply gratuitously to every practitioner desiring it antitoxin for the treatment of private cases, as also to lend a sterilised syringe for the injection of the antitoxin. We have still to express regret that fuller advantage is not taken of this privilege, so as to secure the earliest possible treatment of the case.

Typhoid Fever.—Although the number of cases (21) reported during last year is not the lowest on record, it is one of the lowest. In the preceding year there were 34, but in 1908 there were only 16. The number of deaths last year was 2,

giving a case-mortality of 9·5 per cent. The average case-mortality has, in Aberdeen, previously been about 12 to 13 per cent. Of the 21 cases during the year, one showed the para-typhoid bacillus and gave the para-typhoid Widal reaction. In a few of the remaining cases, neither the typhoid nor the para-typhoid bacillus could be separated from the blood, stools, or urine, but a more or less well-marked typhoid Widal reaction was obtained in each case. As regards the 16 cases treated in the City Hospital, the blood and excreta in each case were repeatedly examined for the bacillus, and no case was discharged until after two consecutive negative examinations.

The examination of the blood for the bacillus is proving to be a most valuable method in the early diagnosis of typhoid—the germ being sometimes found even before the close of the period of incubation, and several days before the Widal agglutinative reaction is obtainable.

Six of the cases of typhoid were of persons on ships. One of these had recently arrived from Buenos Ayres on a vessel in which a fellow-sailor had died of typhoid. Another occurred on a German trawler. The remaining four cases among sailors occurred in a coasting steamer. Inquiry into the cases suggested the probability of the first two having been infected from eating in a restaurant in a small town in the north, in connection with which there was a case of typhoid fever in the family of the owner. These two men subsequently infected two of their fellows.

One of the typhoid patients—a girl—was found to have been infected during her stay with friends in the country, where there was a case of typhoid. This girl afterwards communicated the disease to one of her own family in Aberdeen. Four of the remaining 13 cases occurred in two closely related families, the first case being that of a child, from whom the infection was conveyed to the remaining three patients. The original source of the infection could not be traced. The other members of the two families were tested by the Widal reaction for the possible presence of a typhoid carrier, but with a negative result.

One case occurred in a hospital in the city in which a typhoid patient was being nursed. It is usually possible to nurse typhoid cases in a ward for general cases without the infection being conveyed to other patients. This experience, however, showed that such a practice was not without possible danger. There is no reason to believe that the infection is communicated through the air, but it may be conveyed on food or eating utensils by some lack of precautions on the part of a nurse.

Typhus Fever.—No case of this disease has been reported since 1905.

I made reference in the report for last year to the interesting verification by experiments on animals of the conclusion arrived at from epidemiological observations, and expressed in my report for 1905, as to typhus being probably spread by body vermin. Further investigations have been undertaken during the past year, and they all unite in showing that typhus is without doubt communicable by means of body vermin, especially by lice. Experiments were also made with fleas, but the results were usually negative. The animals employed for the experiments were monkeys. I am not, however, convinced that fleas are not a means of conveying

typhus in man. Our experience during the outbreak of 1904-5 seemed to point somewhat strongly to the flea being implicated. It is possible that the flea may be a more active agent in man than in monkeys in transmitting typhus infection. One must always guard against applying too closely to man the results derived from experiments on lower animals.

Epidemic Cerebro-Spinal Meningitis.—The cases of this disease during the year amounted to only 4, as against 18 in the preceding year. In each of the years 1907 and 1908 there were also only 4 cases. Of the 4 cases last year, 1 proved fatal. Of the 18 in 1909, 10 died; and of the 8 in 1907 and 1908, 6 died. There has thus been a considerable decline in the fatality of the disease. This may be due, in part, to a change of type, but it has appeared to me to be largely dependent on the curative effect of Flexner's serum, which we began to use early in 1909. As stated in the report for the preceding year, the medical resident (Dr. Banks) and myself, from our experience of the cases in the City Hospital, are of opinion that Flexner's serum is a remedy of much value in the treatment of epidemic cerebro-spinal meningitis.

As in preceding years, no case has been regarded as suffering from this disease unless the characteristic micro-organism was found in the cerebro-spinal fluid. As usual, the Department had its attention drawn to a few suspected cases, which proved, on bacteriological examination, not to be genuine cases.

Of the four cases of cerebro-spinal meningitis notified during the year, no two occurred in the same family or were in any known way related to one another. It is true that two of the cases occurred in one ward of the city, but their houses were some hundreds of yards apart, and the families were unknown to one another. The sporadic nature of the disease has been a notable feature of its distribution in this city since cases began first to be recognised about four years ago. Three cases during 1910 were of young persons between 5 and 15 years of age. The remaining case was under 5 years of age. The single death was of a boy of 7 years, who died after one day's illness.

The usual precaution was taken in every case of swabbing for bacteriological examination the throats of all family contacts, but in no case was the meningococcus found in the mucus.

Erysipelas produced, as usual, a considerable number of cases (159), or 9 more than in the preceding year. In 1908, there were 156 cases; and in 1907, 212. The fatality has undergone considerable reduction recently. Last year there were only 2 deaths, as against 5 in the preceding year, and 7 in 1908.

Puerperal Fever.—Six cases of this disease came to the knowledge of the Department during the year, or 7 fewer than in the preceding year, but the same as in 1908. There were only 2 deaths. As usual, few of the cases were notified by the medical attendant, and the knowledge of the cases was chiefly obtained by the intimations made, under agreement, by the registrars, who at once inform the Department of every death of a woman occurring within four weeks after child-

birth; but no case is entered as one of puerperal fever without previous communication with the medical attendant. In every case, the articles of clothing and bedding were at once disinfected, and the nurse or midwife was removed to the City Hospital for the thorough disinfection of her clothing and bedding, and especially of her hands.

Influenza was registered as the cause of 27 deaths during the year, or 3 fewer than in the preceding year, and 22 fewer than in 1908. With the exception of 7 cases, the deaths were chiefly of persons of mature or advanced age.

Plague.—Owing to a few cases of plague having occurred in Suffolk in the autumn of the year, and to the apparent association of the outbreak with an infection of rats in the district—probably arising from the escape of some plague-infected rat from a foreign vessel—the following circular regarding the destruction of rats in the city was issued by the Sanitary Inspector and myself, and distributed among the occupiers of the various warehouses in the vicinity of the docks, and also among the owners of stables, slaughter-houses, meat markets, grain stores, provision curing yards, and similar places likely to be infested with rats. An inquiry was also made at the same time as to the prevalence of rats in such places, and it was found that in about one-half of the premises visited rats were occasionally seen, but were not numerous. There was no history of an unusual number of dead rats having been met with recently. Two or three dead rats were examined bacteriologically for the plague bacillus, but with a negative result.

A memorandum of instructions for the guidance of the Sanitary staff in dealing with vessels arriving from plague or cholera infected ports—which had been prepared a few years ago—was carefully revised and extended in connection with the occurrence of both plague and cholera in certain foreign ports. A large number of cases of cholera were reported from the Black Sea and Baltic ports during the year. All vessels arriving from these ports were visited and inspected before being allowed to enter the docks, and the water tanks were emptied and washed out with water from the city supply. No case of illness suggestive of cholera or plague was found on any of the vessels.

“DESTRUCTION OF RATS—PLAGUE PRECAUTIONS.

“The relation of rats to the propagation of plague is now fully established. Rats may be attacked by plague, and the infection may be conveyed to man by fleas feeding on the blood of rats and afterwards inoculating man. Outbreaks of plague among human beings are usually preceded by an epidemic of the disease among rats.

“The recent occurrence, in an English county, of a few fatal cases of plague, accompanied by distinct evidence of a fairly extensive infection of the rats in the district, has created some uneasiness as to the possible extension of this dangerous disease to other parts of the United Kingdom. The likelihood of this is, fortunately, not great, if regard is had to the experience of other countries.

“*Rat-proof Premises.*

“It is, however, advisable that opportunity should be taken to impress upon the occupiers and owners of premises in the City that may suffer from the presence of rats, the desirability of taking all practicable steps to destroy the rats, and, above all, to see that the premises are so constructed or altered, as by the provision of concrete or similar impervious floors and skirtings, and by suitable closing of all spaces or openings, that they are rendered incapable of harbouring rats.

"Any access to drains, sewers, and ditches or pools of water should also, so far as possible, be stopped. Rats are not usually met with in premises in which there is no access to water or sewage. Sometimes the presence of rats in a building is a sign of the drains or sewers being imperfect. Some of the older sewers are only rubble built, and are, therefore, not proof against rats burrowing from them into houses, even although the house drains are perfect."

"The Sanitary Department will be glad to give advice regarding the steps to be taken in rendering buildings proof against rats; and in examining faulty drains."

"Methods of Destruction."

"For the destruction of rats various methods are in use, such as by trapping, poisoning, and disease virus. The object is to exterminate the rats completely, for if the rats, by any method, are only considerably reduced in number, they multiply so quickly by breeding that in a few months they may be as numerous as ever. For this reason, it is desirable that adjoining premises suffering from rats should make a concerted effort to destroy the rats; and especially is this necessary in regard to such premises as slaughter-houses, provision works, meat markets, granaries, and stables, which, from the abundant supply of food they provide, are, unless properly constructed, especially apt to be overrun with rats, and to form a centre from which rats find their way into surrounding premises, even if only as occasional visitors."

"For complete extermination of the rats, the most satisfactory results have been obtained from the use of a microbic virus first introduced by Dr. Danysz, of the Pasteur Institute, Paris. The virus is now prepared by more than one maker, and can be obtained through chemists. It causes a fatal infectious disease among rats and mice. It is not dangerous to domestic animals or human beings. The rats usually die in the open. Full directions are supplied with the virus by the makers."

"Among poisons, arsenic is frequently used, but is highly poisonous to man, and cannot be recommended unless it is to be applied by experts in rat-catching."

"An equally effective poison for rats, and one which in the small doses required for rats is practically harmless to domestic animals, is barium carbonate. Rats poisoned by it usually leave the premises in search of water and die in the open. The bait is prepared by mixing one part of barium carbonate with five parts of oatmeal, and adding enough water to form a stiff paste; or the poison may be mixed with butter and spread on bread. The Agricultural Department of the United States have found this poison to be useful."

"It is very important in preparing and laying down virus or poison for rats, never to allow the fingers to come into contact, at any stage, with the material. Spoons, knives, or forks should be used. Rats have an acute sense of smell, and are usually suspicious of food that smells of the human touch. It is also an advantage to feed the rats for one or two days previously with the same kind of food, but unpoisoned."

"Ships, and Premises near Harbour."

"It is of much importance that premises in the vicinity of the harbour should take precautions against rats, as it is usually by rats from ships that plague is introduced into a town."

"Shipowners and shipping agents should instruct the captains of vessels as to the need for keeping their vessels free from rats, and as to the methods to be employed for their destruction."

"After vessels have once become rid of rats, their entrance should be prevented at ports of call—especially at ports suspected to be suffering from plague—by withdrawing all gangways during the night and placing quoit-like rings on the mooring ropes—the rings being cut out of sheet metal, with a central opening sufficient to allow the rope to pass through."

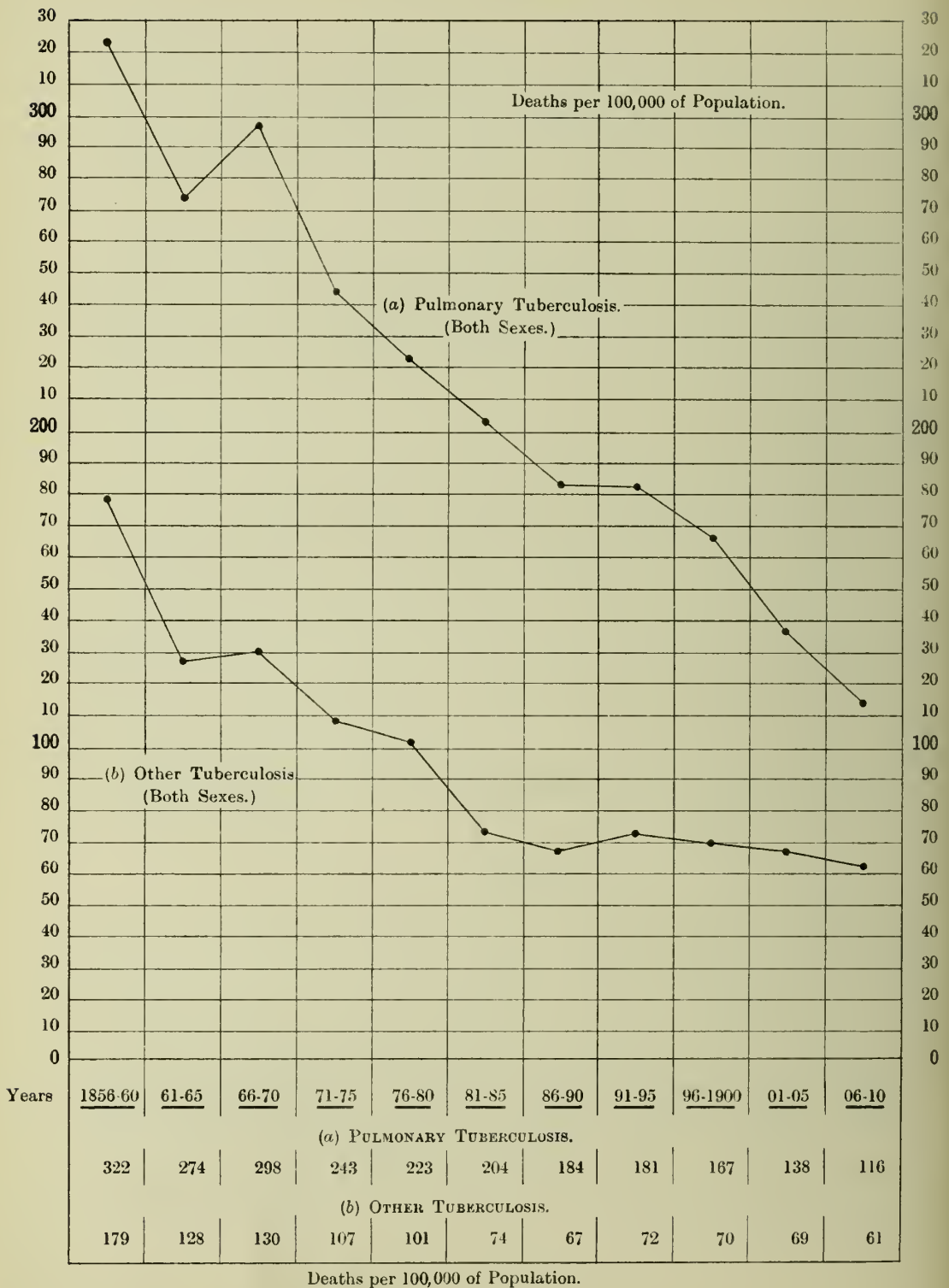
"It may be an impossible task to rid the City entirely of rats, but there can be no doubt of the possibility of practically banishing them from premises in which the constructive arrangements are such as to deprive the rats of places for refuge and for breeding."

"The occupants of premises—whether work-places or dwelling-houses—in which there are no rats, are very unlikely to suffer from plague, even if a considerable outbreak of the disease should occur at any time within the City."



ABERDEEN.—TUBERCULOSIS, 1856-1910.—QUINQUENNIAL PERIODS.

ALL AGES. BOTH SEXES.



(Corrected for transferred deaths in 1904 and subsequent years.)

TUBERCULOUS DISEASE.

The number of persons dying from tuberculosis during the year was 265, as against 270 in the preceding year. The number included 183 deaths from pulmonary tuberculosis or phthisis, and 82 deaths from other forms of tubercular disease. The corresponding numbers for the preceding year were 181 and 89. There has, therefore, been a very slight increase in the deaths from phthisis, and a decrease in the deaths from other tuberculous diseases. The death-rate for the whole group of tuberculous diseases was 161 per 100,000 of population, as against 164 in the preceding year, and is the lowest among the corresponding rates for the principal Scottish towns, as will be seen from Table XIII.

Although the city has enjoyed a remarkable decline in its death-rate from tuberculosis during the last forty to fifty years, the decline has never been without interruptions such as we are at present experiencing.

The accompanying diagram, in which the decline is represented for five-yearly periods ending with 1905-10, and in which limited interruptions disappear in the averages for the periods, shows that the decline in the death-rate from pulmonary tuberculosis has been steadily going on till the last quinquennium, and that the rate of fall has not abated. At the same time, it is not to be expected that, in times when trade is stagnant and employment is scarce, as it has been in Aberdeen during the last five or six years, tuberculosis, which is intimately linked with social conditions, can continue to decline at the same rate as in more prosperous times.

The following report, in regard to a proposal to open a pavilion in the City Hospital for the isolation and treatment of tuberculous patients, was submitted to the Town Council in the course of the year. The report was approved by the Council, and the pavilion was opened early in 1911. Along with a shelter subsequently erected, the pavilion accommodates about 50 patients, and has practically been full since a month from the time of its being opened. The demand for admission has almost been constantly in excess of the available beds, in spite of the fact that the sanatorium connected with Newhills Convalescent Home continues to receive its full quota of early phthisis cases and that the tuberculous wards of the Poorhouse have as many inmates as formerly. Cases at all stages are being received into the City Hospital—the earlier cases in the hope of an arrest of the disease by sanatorium and tuberculin treatment; the advanced cases, in the expectation of diminishing the amount of infection in the household from which the patient comes; and the intermediate cases, with a view to improving the health of the patient and educating him in the necessary precautions against spreading infection when he returns to his family.

A full and careful trial is being made of tuberculin treatment in all suitable cases. The out-patient department of the Royal Infirmary is practically serving the purpose in the meantime of a tuberculous clinic.

The proposal in the report to introduce a system of voluntary notification of all forms of tuberculosis was approved by the Town Council in 1911, and is now in

TABLE XI.—ABERDEEN.—MORTALITY FROM TUBERCULOSIS, 1856-1910,*

Per 100,000 of Population.

(Calculated on Populations as estimated from Censuses of 1901 and 1911.)

PERIOD.	PULMONARY TUBERCULOSIS.			OTHER TUBERCULOUS DISEASES.			ALL TUBERCULOUS DISEASES.		
	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
1856-60 .	333	312	322	235	135	179	568	447	501
1861-65 .	267	279	274	158	103	128	425	382	402
1866-70 .	295	300	298	170	98	130	465	398	428
1871-75 .	234	250	243	129	89	107	363	339	350
1876-80 .	217	228	223	112	92	101	329	320	324
1881-85 .	189	216	204	90	62	74	279	278	278
1886-90 .	179	188	184	76	60	67	255	248	251
1891-95 .	179	183	181	83	62	72	262	245	253
1896-1900 .	166	168	167	77	64	70	243	232	237
1901-05 .	143	134	138	79	62	69	222	196	207
1906-10 .	119	113	116	74	51	61	193	164	178
1906 . .	118	140	130	89	52	70	211	196	204
1907 . .	123	111	117	81	61	71	204	172	188
1908 . .	131	97	113	80	47	61	211	144	174
1909 . .	112	108	110	62	47	54	174	155	165
1910 . .	112	110	111	54	46	50	166	156	161

* Corrected for transferred deaths in 1904 and subsequent years.

TABLE XI. (A).—DEATHS AT VARIOUS AGE-PERIODS FROM TUBERCULOUS DISEASES
IN YEAR 1910, WITH AVERAGE FOR PRECEDING TWO QUINQUENNA.

Compared with Deaths from All Ordinary Infectious Diseases and from All Causes.

	Year.	Number of Deaths.					Number of Deaths from Tuberculous Diseases in every 100 Deaths from All Causes.
		Phthisis.	Other Tuberculous Diseases.	ALL TUBERCULOUS DISEASES.	ALL ORDINARY INFECTIOUS DISEASES.	ALL CAUSES.	
ALL AGES, . . .	1910	183	82	265	95	2339	11·3
	Av.						
	1905-1909	194	103	297	194	2568	11·6
	1900-1904	219	114	333	237	2812	11·8
Infant Period, . . . 0—5 Years, . . .	1910	2	40	42	55	645	6·5
	Av.						
	1905-1909	7	57	64	143	874	7·3
	1900-1904	8	64	72	176	1002	7·2
School Period, . . . 5—15 Years, . . .	1910	7	17	24	17	103	23·3
	Av.						
	1905-1909	13	25	38	15	103	36·9
	1900-1904	16	20	36	13	107	33·6
Adolescent Period, . . . 15—25 Years, . . .	1910	44	17	61	3	109	56·0
	Av.						
	1905-1909	49	8	57	4	119	47·9
	1900-1904	61	14	75	8	153	49·0
Mature Period, . . . 25—60 Years, . . .	1910	119	8	127	6	590	21·5
	Av.						
	1905-1909	116	13	129	13	635	20·3
	1900-1904	123	15	138	19	699	19·7
Post-Mature Period, . . . 60 + Years, . . .	1910	11	0	11	14	892	1·2
	Av.						
	1905-1909	9	1	10	19	837	1·2
	1900-1904	11	1	12	22	851	1·4

operation. The proportion of cases being notified is quite as high as in towns with compulsory notification, and is indeed higher than in most such towns, and bears out the prediction in the report to the Town Council that doctors are ready to notify cases voluntarily if there is a prospect of benefit to the patient, either from home visitation by inspectors and health visitors or from admission to a hospital or sanatorium.

The report was as follows:—

“Tuberculosis—Hospital Treatment.”

“According to the recognised standard of one bed per 1,000 of population, the whole accommodation at the City Hospital, as recently extended, is scarcely more than is necessary to meet the requirements of ordinary zymotics if they are to continue to be removed to the hospital in as liberal proportion as in the past, but, owing to great fluctuation in the prevalence of such zymotics, there are considerable stretches of time within which some of the wards stand unused.

“With this in view, I suggested to the Committee when engaged in planning the additions that one of the reconstructed and extended pavilions should be so arranged as to make it suitable for the treatment and care of cases of pulmonary tuberculosis or consumption. These arrangements are such that they will not interfere with the use of the pavilion at other times for ordinary zymotic cases when epidemics of the more highly infectious and dangerous diseases demand it.

“In making a beginning with the hospital treatment of tuberculous cases, the Town Council will, therefore, incur very little capital expenditure. If the proposed form of educational work should be found later to be ineffective or unnecessary, it can readily be stopped, and there will be no waste of capital in disused buildings.

“The suggested work is not novel. It is now being carried on in several zymotic hospitals elsewhere.

“The proposal is, of course, based on the infectious character of tuberculosis, and on the need for training sufferers from this disease in such precautions and modes of treatment as will, if pursued after return to their homes, not only assist in considerable measure in ameliorating their own health, but also tend, it is hoped, to lessen the spread of the disease in their houses and work-places.

“The patients will be taught by practical experience to appreciate not only the tolerance of the utmost freedom of ventilation of their rooms without danger, but also the substantial benefits that are felt in almost every case in the lessening or disappearance of some of the more distressing symptoms of the disease. Instruction and demonstrations in breathing exercises, which are often found to be of much advantage to consumptives, will also be arranged for.

“The value of sufficient rest and of suitable and adequate feeding will be made apparent, although, unfortunately, some of the poorer patients will not be in a position to profit by this when they return to home and work. But at least their cases will have come more prominently under the notice of the Committee, and help may sometimes be obtainable from charitable sources.

"The patients will be fully instructed in such means as may assist in preventing the spread of infection.

"It is of much advantage in combating the development and spread of tuberculosis that the patient on returning home will be able to communicate the benefit of his hospital experience to others.

"It happens only too frequently that in families where a case of tuberculosis has occurred, other cases tend to follow. There may be a family predisposition, and there is the presence of a source of infection. In such families it is desirable that the infected member should know how best to avoid conveying infection to others; but it is equally important that by sharing in the open-air methods of living, which a properly instructed patient will carry back, the other members of the family will become strengthened against successful infection. The value of hygienic measures in the treatment of an actually tuberculous case is great, but it is still greater in staying the development of tuberculosis.

"It is a further educational gain that the treatment of the cases will be carried out in a hospital which is easy of access, and is visited twice a week by large numbers of the relatives of patients. The tuberculosis wards will be a constant object lesson.

"I would also be glad of the facilities which such wards will give for a proper trial of the benefits of tuberculin treatment in cases of phthisis. This treatment consists in the administration of a remedy prepared from tubercle bacilli, and, when introduced by the late Professor Koch, it fell somewhat quickly into disrepute, in spite of very high expectations regarding it, and the strikingly beneficial results obtained in experiments on animals. It has more recently been found that much of the apparent failure in the treatment of the human subject was due to inadequate knowledge of the dosage and mode of administration. With fuller knowledge, encouraging results are now being obtained by several physicians, some of whom venture to claim that it will definitely arrest the disease in a large proportion of early cases, and greatly improve the condition of even moderately advanced cases.

"Similar claims are advanced on behalf of sanatorium treatment. But a stay in a sanatorium to be successful must usually be continued for five or six months, while it is contended for tuberculin treatment that it can be applied in early cases without the patient being off duty for more than a few days. Probably the best results can be secured by a combination of tuberculin with sanatorium or hospital treatment.

"It will be of much practical value to ascertain for ourselves, by a prolonged trial on a fairly large scale, how far tuberculin treatment, carried out on the most modern lines, will be successful in the arrest of tuberculous disease in phthisical cases under the conditions in which they will be placed in the City Hospital.

"For purely educational purposes it has not been thought necessary elsewhere to retain tuberculous cases in hospital for more than six to eight weeks, although the time in individual cases must vary with the progress and condition of the patient. Such a period is too short for a complete course of tuberculin treatment, but there should be no difficulty in arranging for discharged patients revisiting the hospital for a continuance of the treatment.

"The uses that I have suggested for the tuberculosis pavilion may leave it to

be inferred that unimprovable advanced cases of tuberculosis are not to be admitted. I do not propose this. Cases at any stage should be admitted. I believe, however, from the experience of other hospitals, that the proportion of very advanced cases seeking admission, or consenting to admission, would not be large, and that they could, for the present, be easily accommodated within the four small wards attached to the pavilion.

"It is undesirable that grave and practically moribund cases should be mixed, in the same ward, with hopeful and improving cases. They create a feeling of depression, and hinder the recovery of the less severe cases. As the work proceeds, more accommodation can be provided for advanced cases, if found to be necessary.

"The pavilion, with its two main wards and its four small wards, is capable of accommodating 32 to 36 adult patients, and there is no reason why a few cots should not be placed in each large ward for the treatment of non-surgical cases of tuberculosis in children. Thus, 40 to 45 patients, in all, might be accommodated at one time. If the average stay of each patient were two months, and all the beds were constantly occupied, some 250 patients could each year be dealt with. But even if only a half or a fourth of this number offered themselves for treatment, they would form a substantial addition to the number of tuberculous cases already receiving institutional treatment and care in the hospitals and the Poorhouse.

"During the past year (1909), the number of cases of phthisis admitted from the city to such institutions, including the sanatorium at Newhills, was:—Royal Infirmary, 58 cases; Sick Children's Hospital, 12 cases; Morningfield Hospital, 2 cases; Newhills Convalescent Home, 68 cases; and Oldmill Poorhouse, 35 cases—in all, 175 cases. The number of deaths from phthisis in the whole city during the year was 181. The number, however, of more or less well-defined cases of phthisis was probably not less than 600 to 700.

"The Royal Infirmary in the same year admitted 87 cases suffering from other forms of tubercle than pulmonary phthisis; the Sick Children's Hospital, 100; and the Poorhouse, 3 cases.

"In connection with the proposed opening of the City Hospital to the admission of tuberculous cases, other questions in the control of tuberculosis may fittingly be discussed now, although it may be felt that some of them can stand over until the effect of the work at the hospital is seen.

"One question is the provision, for early cases of phthisis, of a sanatorium in the country on more extensive and somewhat different lines from the sanatorium established by Mrs. Smith at Newhills, which, however, has for several years been rendering most valuable service to the city. If a new sanatorium were provided, it might be suggested to the Committee of Management of the Home at Newhills that the accommodation there could, with the greatest possible advantage, be utilised for what may be called pre-tuberculous cases—cases in which the development of tubercle was threatening, but could not be definitely asserted. Such cases occur not infrequently in families with a tuberculous member, or after debilitating disease.

"It is now generally recognised that the sanatorium treatment of consumptives, in order to be effective in arresting the disease, must deal with cases in the earliest

stages, and, therefore, at a time when the patient is able to move about and to undertake work, and that it is of great advantage that, after a short period of preliminary rest, outdoor work should be undertaken, such as may be found in field and garden cultivation. Work not only prevents the patient lapsing into habits of idleness in the course of a prolonged stay of several months in the sanatorium, but also assists materially in promoting the arrest of the disease.

"For such a purpose, a small farm in a suitable situation, with suitable soil, should be purchased. There is no advantage in erecting expensive buildings of stone. Since the patients have to live and sleep practically in the open air, cheap wooden sheds are almost better than well-constructed rooms, and can be erected at a trifling cost, as compared with the large sums not infrequently expended in the past on sanatoria.

"The initial capital expenditure need not therefore be large, and might be wholly met by voluntary contributions. The cost of the annual maintenance, apart from rent and interest, would not, of course, be much affected by the character of the buildings; and it is a matter for consideration whether, if a sanatorium were provided, the Town Council and other local authorities sharing in its benefits should undertake at least part of the maintenance.

"Another part of the machinery for dealing with tuberculosis to which importance is attached in many places is the provision of a so-called anti-tuberculous dispensary for the examination and treatment of tuberculous cases, but more especially for the selection of cases for the various institutions receiving tuberculous patients, and for assisting the Public Health Department in getting into fuller touch with the disease.

"At present in Aberdeen, tuberculous cases unattended by their own doctor go to the Aberdeen Dispensary or to the out-patient departments of the Royal Infirmary or Sick Children's Hospital, or, if paupers, they are treated by the medical officers of the Parish Council. Last year, 190 cases of phthisis from the city were examined in the out-patient department of the Royal Infirmary, and 130 cases at the Dispensary. At the two institutions 174 cases of other forms of tuberculosis were also dealt with.

"The suggestion has been seriously made, and has many supporters, that the work of the Aberdeen Dispensary should be conjoined with that of the Infirmary. If this could be carried out, the Directors of the Infirmary might arrange for a special out-patient and dispensary clinic for tuberculous cases on two or three days a week, to which the various medical officers dealing with out-patients could refer such of their tuberculous cases as required special consideration. No institution in the city is so well equipped with every modern means for diagnosis, or so well provided with a large and skilled staff.

"Tuberculosis, differing from other zymotics, is so interwoven with other causes of illness—a fact that is every year becoming more fully recognised—and exhibits itself in so many forms, that there are considerable advantages in having the special tuberculosis clinic in intimate association with the principal institution for the sick.

"It has also the merit of keeping the medical men of the city in more active co-operation with the Public Health authorities in dealing with tuberculosis. Such co-operation is essential to success.

"Future exigencies may, however, render a municipal dispensary necessary, and its provision should not, therefore, be lost sight of.

"In the meantime a large amount of information regarding cases of tuberculosis among the poorer classes—and it is with these that the Public Health Department will always be chiefly concerned—is obtainable from the Dispensary, the Parish Council, and the out-patient departments of the hospitals.

"The question of information regarding cases of tuberculosis raises the further question of their compulsory notification. The Local Government Board of Scotland has recommended the adoption of the compulsory notification of pulmonary tuberculosis, and I am willing to advise the Town Council to defer to the opinion of the Board, which naturally carries great weight, although, personally, I should prefer to begin with a system of voluntary notification, chiefly for the reason that, while I am aware that little of the anticipated friction or difficulty has arisen in the places in which compulsory notification is in force, I venture to doubt if the country is quite ripe for its loyal acceptance, as is shown by the evident fact that the cases of phthisis notified are usually far short of the cases that must be known by medical men to exist, and that the cases notified are—apart from institutional cases—mainly advanced cases. This is partly due to delicacy on the part of medical men in informing their patient, and even the relatives, of the presence of phthisis until the case is advanced, and it is also in considerable measure caused by an unwillingness to brand with the stigma that is popularly attached to phthisis a case that may eventually recover.

"I believe that, provided the Public Health Department is able to do something for a case, and that the medical man feels that the case requires to be looked after by the Department, he will be quite ready to notify it, on the assumption that he receives, as would only be fair, the same fee as he would have received under compulsory notification. If he does not notify a case for some satisfactory reason, he is not troubled with the thought that he is contravening the law, and has rendered himself liable to a penalty. When voluntary notification has failed, it has been largely due to the fact that it was often begun before there was practically any provision for dealing with the notified cases. When such provision has existed, voluntary notification is practically as effective as compulsory notification. It has also the advantage, as it appears to me, of allowing greater freedom of consultation between the medical attendant and the Medical Officer of Health in a case in which, for sufficient reasons, the permanent record of the case in the books of the Health Department may not be desired, and in which everything wanted in the interests of public health can be obtained without formal notification.

"With voluntary notification, the Local Authority has the power to make its own terms, and may require from the medical attendant, as a condition of payment of the fee, whatever information may be desired regarding the case reported.

"It is right to mention that, under the advice of the Scottish Local Government

Board, about half of the population of Scotland is now subject to the compulsory notification of pulmonary phthisis. The English Board has not, however, pressed for compulsory notification, except for cases in charge of the Poor Law authorities. For other cases it has, so far, been indifferent as to compulsory notification, and for many years it even definitely discouraged it.

"I would, however, venture to go further than the Scottish Board in one respect, and would prefer that the notification, whether compulsory or voluntary, should extend to cases of all forms of tuberculosis. From my experience in visiting households in which a case of tuberculosis other than pulmonary was the immediate reason of my visit, I have frequently found cases of mild or incipient pulmonary tuberculosis that were sometimes as much in need of attention as the well-marked cases of phthisis that are usually the subject of compulsory notification. The extension of the notification to all cases of tuberculosis would be helpful in tracing the origin of tuberculous infection, and in giving an opportunity for advising as to home precautions. It would also assist materially in the capture of incipient tuberculous cases for sanatorium or other treatment.

"In any arrangements that may be made, I sincerely hope that the Public Health Department will continue to enjoy the full and sympathetic co-operation of the medical practitioners of the city, upon whose valuable and skilful help so much must depend for the success of any movement for dealing with a disease the treatment of which in its manifold forms constitutes a very large part of medical practice.

"I have pleasure in stating that Dr. Lister, who has for many years made a special study of tuberculous diseases, and is medical adviser for the Newhills Sanatorium, is taking a keen interest in the proposed tuberculous ward at the City Hospital, and has spontaneously and most generously offered his services as an honorary physician. It would be of enormous advantage to have the aid of his great skill and large experience, and it would, I feel sure, increase the confidence of the medical profession and the community in the new field of work at the hospital.

"If the Committee decide to admit tuberculous cases to the City Hospital, Dr. Lister agrees with me in suggesting that it is desirable to erect a cheap open wooden shed around the north-east corner of the ground adjoining the pavilion, the shed to extend from the north end of the pavilion in quadrant form to the gate of the waiting-room. The shed would face the sun for a large part of the day, and would be useful for patients sitting in during the day and sleeping in at night.

"A small open-air shelter would also be wanted for use by the patients occupying the south main ward."

BACTERIOLOGICAL EXAMINATIONS.

(Table XII.)

Table XII. gives a summary for 1910, and for each of the preceding ten years, of the bacteriological examinations made for the city in the Bacteriological Department of the University by the Professor of Pathology and his special assistant,

TABLE XII.—ABERDEEN.—BACTERIOLOGICAL EXAMINATIONS.

YEAR.	CASES OF SUSPECTED DISEASE.													
	TYPHOID FEVER.			DIPHTHERIA.			TUBERCULOSIS.			EPIDEMIC CEREBRO-SPINAL MENINGITIS.			OTHER DISEASES.	TOTAL.
	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.	Total.		
1910 . . .	36	114	150	520	671	991	69	224	293	5	30	35	6	1475
1909 . . .	27	83	110	189	469	658	87	180	267	22	51	73	8	1116
1908 . . .	25	121	146	213	202	415	73	161	234	6	15	21	4	820
1907 . . .	31	139	170	163	214	377	60	186	246	5	23	28	3	824
1906 . . .	19	92	111	176	222	398	84	178	262	...	...	...	5	776
1905 . . .	8	76	84	104	124	228	83	182	265	...	...	...	308*	885
1904 . . .	17	95	112	160	162	322	83	154	237	...	...	...	7	678
1903 . . .	25	105	130	180	150	330	60	95	155	...	...	...	4	619
1902 . . .	32	79	111	165	131	296	67	128	195	...	...	...	3	605
1901 . . .	141	58	199	111	172	283	61	81	142	...	...	...	9	633

* 307 of these examinations were of the blood of Typhus cases.

In addition, during 1910, Bacteriological examinations of 45 samples of food and animal products were made.

under the agreement with the Town Council. The assistant for the past year was Dr. Agassiz, who was succeeded shortly before the close of the year by Dr. James Watt. The Department is greatly indebted to Professor Dean and his assistant for the constant courtesy which they show in their relations with the Department, and for their readiness to give assistance and advice.

The number of the examinations has been rapidly mounting recently. During 1910, 1,475 examinations were made of material from cases of human disease. This represents an increase of 359, as compared with the preceding year, when 1,116 examinations were made. In 1908, the number was 820. The examinations for typhoid fever included, in many of the cases dealt with, the examination of the blood, stools, and urine for the typhoid germ, as well as the Widal agglutinative test.

In addition to these examinations, 45 samples of food and animal products were examined bacteriologically, 34 being samples of milk. Of the milk samples, 26 were examined for the presence of the tubercle bacillus by means of animal inoculations. It is gratifying to be able to report that in each case the result was negative.

The agreement between Professor Dean and the Town Council and other contributing local authorities in the north-east of Scotland continues to work with great smoothness.

The sum contributed yearly by the various authorities sharing in the agreement amounts approximately to 15s. 3d. per 1,000 of population, and provides a total sum of nearly £300 for the year. This covers the whole expenses of the bacteriological examinations, except the charge for animals and their keep in connection

with inoculations. This charge is, under the agreement, paid by each contributing authority requiring such experiments, and is in addition to the ordinary contribution.

COMPARISON WITH OTHER TOWNS.

(Tables XIII. and XIV.)

Two tables (XIII. and XIV.) are submitted, in which the usual comparison is made between Aberdeen and other large towns in Scotland, and also Scotland as a whole, in regard to some of the more important features of their vital statistics. For the information contained in the tables I am mainly indebted to the valuable Supplement to the Annual Report of the Local Government Board. The rates appearing in the Supplement have, however, been recalculated for each town, so as to adjust them to the population as disclosed by the recent census.

Owing to the uncertainty as to the growth of the population since the census of 1901, this is the first time for several years that it has been possible to make an exact comparison between the different towns.

The rates given have in every instance been corrected for transferred deaths, that is, for deaths transferred from the records in the places of their occurrence to the records of those places in which the persons have their home residence.

A further correction is introduced for the death-rate from all causes. This correction is necessary to a strict comparison between the towns, owing to the differences in sex and age distribution, as explained in certain preceding annual reports. This correction is based, however, on the census of 1901, the figures for sex and age in the census of 1911 not being yet available. At the earlier census, the population of Aberdeen was so stated in respect of such distribution that the crude or uncorrected death-rate is slightly higher than the corrected death-rate; while for each of the other principal towns the reverse is true.

Births.—Table XIII. shows that, among the seven principal towns, Aberdeen had the second lowest birth-rate (262 per 10,000 of population), standing next to Edinburgh (221), although considerably above that city, and closely under Dundee (271). The town with the highest birth-rate was Greenock, with 289. The rate for Aberdeen was the same as the rate for All Scotland.

Marriages.—In respect of the marriage-rate, Aberdeen occupied the third highest place, with a rate of 80 per 10,000 of the population—Glasgow, with 87, and Edinburgh, with 85, being higher. The rate for All Scotland was 65. The rates for the larger towns are probably in most cases exaggerated, as has already been pointed out for Aberdeen in an earlier part of the report, owing to marriages taking place in the city of persons who reside in the surrounding districts. The reports of the Registrar-General give no clue to the number of such marriages, and makes, indeed, no reference to them. Corrected for this error, the rate for Aberdeen, in place of being 80, should be 67, as previously stated. It is probable that the rates for Glasgow and Edinburgh would require, if similarly corrected, to be reduced in, at least, equal proportion.

TABLE XIII.—BIRTH, DEATH, AND MARRIAGE-RATES DURING THE YEAR 1910.*

Seven Principal Towns in Scotland.

(Population estimated from Censuses 1901 and 1911.)

	Glas- gow.	Edin- burgh.	Dundee.	Aber- deen.	Paisley.	Leith.	Green- ock.	All Scot- land.
ESTIMATED POPULATION..... (in thousands).	784	320	165	165	84	80	75	4,738
MARRIAGE-RATE (per 10,000 of population).	87	85	72	80	68	67	70	65
BIRTH-RATE (per 10,000 of population).	284	221	271	262	265	275	289	262
DEATH-RATE—								
A—All ages. (per 10,000 of population).								
(a) All causes,	167	145	202	142	152	154	183	150
Corrected for Age and Sex Distribution	185	151	213	141	159	164	192	150
(b) Seven chief Zymotics,	14·8	8·1	26·5	4·0	8·7	11·2	21·7	10·7
(c) Tuberculosis,	23·4	17·4	25·8	16·1	17·5	21·0	21·3	17·8
(1) Pulmonary,	14·2	12·2	16·1	11·1	11·7	13·5	11·5	10·9
(2) Other,	9·2	5·2	9·7	5·0	5·8	7·5	9·8	6·9
(d) Pneumonia,	15·6	12·4	19·1	9·6	12·5	14·5	17·0	10·7
(e) Malignant Diseases (chiefly Cancer),	9·3	12·1	9·7	9·8	7·6	12·1	10·3	9·6
Diseases of :—								
(f) Respiratory System (exclud- ing Tubercle and Pneumonia),	14·1	10·3	16·1	10·3	18·6	11·1	14·1	12·7
(g) Circulatory System,	23·9	32·1	18·7	33·1	27·1	32·1	35·8	28·0
(h) Nervous System,	7·9	8·2	12·8	7·8	8·3	11·3	10·4	7·7
B—Infants under 1 year (per 1000 births).	119	103	168	111	113	118	129	108
EXCESS OF BIRTH-RATE OVER DEATH-RATE	117	76	69	120	113	121	106	112

* Corrected for transferred deaths.

Deaths.—As regards the death-rate from all causes and at all ages, Aberdeen had the lowest crude death-rate (142 per 10,000), Edinburgh coming next, with 145; Paisley, with 152; and Leith, with 154. The highest rates were in Dundee, with 202, and Greenock, with 183. The rate in Glasgow was 167.

If the death-rate is corrected for age and sex distribution, Aberdeen increases its lead, having a corrected death-rate of 141, as compared with 151 for Edinburgh, and 159 for Paisley. In the preceding year (1909), Aberdeen had, with the population corrected for the census of 1911, the fourth lowest crude death-rate, Edinburgh, Leith, and Greenock being lower; but it had the lowest corrected death-

rate. In 1908, Aberdeen had the second lowest crude death-rate, Edinburgh being slightly lower; but it had once again the lowest corrected death-rate. In 1907, Aberdeen stood lowest in respect both of the crude and corrected rates. This last year was the first in which information was given by the Local Government Board of the corrections for transferred deaths.

In regard to infantile mortality—the deaths of infants under one year per 1,000 births—Aberdeen, which in 1909 occupied the unsatisfactory position of having the highest rate of the towns compared, took, last year, the second lowest place, with a mortality-rate of 111 per 1,000 births, Edinburgh alone being lower, with 103. Paisley came immediately above Aberdeen, with 113; and Leith and Glasgow followed, with 118 and 119 respectively. The highest rate was in Dundee, with 168. The rates in Edinburgh, Glasgow, and Paisley have, like the rate in Aberdeen, fallen since the preceding year, while the rates in Dundee, Greenock, and Leith have risen. The rate for All Scotland was 108, or very slightly above the rate for the preceding year.

In respect of the mortality from the seven chief zymotic diseases, Aberdeen was fortunate in having a very low rate (4·0), owing to the absence of any well-marked epidemic. On the other hand, the rate was very high in certain of the towns, especially in Dundee, with 26·5, and in Greenock, with 21·7.

It is satisfactory to find that Aberdeen continued, as in the preceding year, to have the lowest death-rate (11·1) from pulmonary tuberculosis, or phthisis, Greenock coming next, with 11·5; Paisley, with 11·7; Edinburgh, with 12·2; and Leith, with 13·5. The two highest were Dundee, with 16·1, and Glasgow, with 14·2. The rate for All Scotland was 10·9, or slightly under the rate for Aberdeen. The death-rate for tuberculous diseases other than pulmonary tuberculosis was also lowest in Aberdeen, with 5·0; Edinburgh coming next, with 5·2; and Paisley, with 5·8. The highest rates were 9·8 in Greenock, 9·7 in Dundee, and 9·2 in Glasgow.

Aberdeen also took the lowest place in respect of the death-rate from pneumonia, with 9·6, and Dundee took the highest place with 19·1.

The death-rate from malignant disease (chiefly cancer) was lowest in Paisley, with 7·6, and highest in Edinburgh and Leith, with 12·1 each. In Aberdeen, it was 9·8. It may be of interest to continue the comparison made last year between the towns on the east coast and the towns on the west coast, including in the latter Govan and Partick. All the rates now given in the present report are corrected for the census, and are, for each year, per 10,000 of population:—

EAST COAST TOWNS.

	Edinburgh	Leith.	Dundee.	Aberdeen.	AVERAGE.
1907	10·8 ...	9·5 ...	9·6 ...	11·1 ...	10·3
1908	11·6 ...	12·5 ...	10·5 ...	10·9 ...	11·4
1909	11·7 ...	13·7 ...	10·9 ...	11·1 ...	11·9
1910	12·1 ...	12·1 ...	9·7 ...	9·8 ...	10·9
Yearly average .	11·6 ...	12·0 ...	10·2 ...	10·7 ...	11·1

WEST COAST TOWNS.

	Glasgow.	Govan.	Partick.	Paisley.	Greenock.	AVERAGE.
1907 . . .	7·8 ...	6·3 ...	9·4 ...	8·4 ...	11·3 ...	8·6
1908 . . .	8·5 ...	6·4 ...	8·0 ...	6·7 ...	7·7 ...	7·5
1909 . . .	8·9 ...	6·5 ...	7·5 ...	9·1 ...	7·9 ...	8·0
1910 . . .	9·3 ...	7·4 ...	10·1 ...	7·6 ...	10·3 ...	8·9
Yearly average	8·6 ...	6·7 ...	8·8 ...	8·0 ...	9·3 ...	8·3

It will be observed that in 1910 the mortality from malignant disease was again considerably higher in the east coast (10·9) than in the west coast towns (8·9), but the difference was not so great as in each of the preceding two years.

As regards the death-rate from lung diseases (excluding phthisis and pneumonia), Aberdeen and Edinburgh occupied the lowest place, with a rate of 10·3 each. In Paisley, it reached the high figure of 18·6.

The death-rate from diseases of the circulatory system in Aberdeen (33·1) was the second highest, Greenock being higher, with 35·8. The lowest was Dundee, with 18·7.

It is interesting to note that a low death-rate from diseases of the circulatory system is not infrequently associated with a high death-rate from all causes, as happened last year in Dundee and Glasgow.

As to the death-rate from diseases of the nervous system, Aberdeen was lowest, with 7·8, while Dundee was highest, with 12·8.

In Table XIV. a comparison is made between the four chief towns in respect of three of the more important of the compulsorily notifiable zymotics. The table shows that scarlet fever, during last year, was most prevalent in Dundee, and least prevalent in Aberdeen; that diphtheria also was most prevalent in Dundee, and least prevalent in Edinburgh—the prevalence in Aberdeen being only slightly above that in Edinburgh; and that typhoid fever was most prevalent in Glasgow, and least prevalent in Aberdeen and Edinburgh—these two latter towns being alike in respect of degree of prevalence.

The case-mortality, or the proportion of deaths to sicknesses, from scarlet fever was considerably lower in Aberdeen than in any of the other towns, being only 1·0 per cent., as compared with 2·6 in Edinburgh, 2·7 in Dundee, and 3·4 in Glasgow. The mildness of the type of scarlet fever at the present time, especially in Aberdeen, is quite remarkable.

In connection with the remarks made earlier in the report in regard to the relation of hospital treatment to the mortality of scarlet fever, it is interesting to note that the case-mortality in Dundee (2·7 per cent.), with only 50 per cent. of hospital-treated cases, was lower than in Glasgow (3·4 per cent.), with 91 per cent. of hospital-treated cases.

The case-mortality from diphtheria was lowest in Glasgow, with 10·1 per cent., but the rates in Edinburgh and Aberdeen—11·5 and 11·7 respectively—closely approximated to the Glasgow rate. The rate in Dundee was 13·5.

XIV.—DIPHThERIA, SCARLET FEVER, AND TYPHOID FEVER IN 1910, AND IN PRECEDING THREE YEARS.

FOUR PRINCIPAL TOWNS IN SCOTLAND.

(Corrected for transferred deaths.)

CITY.	Estimated Population in Thousands	TOTAL NUMBER OF NOTIFIED CASES.			NUMBER OF NOTIFIED CASES PER 10,000 OF POPULATION.			NUMBER OF DEATHS PER 100 NOTIFIED CASES.			PERCENTAGE OF CASES TREATED IN HOSPITAL.			NUMBER OF DEATHS PER 10,000 OF POPULATION.		
		Diphtheria (incl. Me. & b. Group).	Scarlet Fever.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Typhoid Fever.
Aberdeen, { Average 1907-09	165	299	674	21	18	41	1.3	11.7	1.0	9.5	92	91	100	2.1	0.4	0.1
	...	256	928	25	15	57	1.5	9.4	1.1	13.7	86	85	84	1.4	0.7	0.2
Glasgow. . { Average 1907-09	784	1,939	4,203	340	25	54	4.3	10.1	3.4	16.5	90	91	96	2.5	1.8	0.7
	...	1,426	2,989	543	17	36	6.3	11.4	3.1	16.0	86	91	92	1.9	1.1	1.0
Edinburgh, { Average 1907-09	320	511	1,512	43	16	47	1.3	11.5	2.6	14.0	93	94	91	1.8	1.2	0.2
	...	476	1,542	70	15	48	2.2	6.1	2.4	10.1	86	94	89	0.9	1.1	0.2
Dundee, . { Average 1907-09	165	498	1,021	69	30	62	4.2	13.5	2.7	7.2	46	50	77	4.1	1.7	0.3
	...	224	722	40	13	43	2.4	16.6	2.9	12.4	39	43	63	2.0	1.5	0.3
All Scotland { Average 1907-09	4,738	8,219	24,085	1,842	17	51	3.9	10.7	2.4	13.7	72	77	82	1.9	1.2	0.5
	...	6,790	17,600	2,309	14	37	4.8	10.7	2.2	13.4	67	76	80	1.5	0.8	0.6

The case-mortality from typhoid fever was lowest in Dundee, with 7·2 per cent., and highest in Glasgow, with 16·5. In Aberdeen it was 9·5, and in Edinburgh, 14·0.

As regards the percentage of cases treated in hospital, Aberdeen stood high, with 100 per cent. for typhoid fever, 92 per cent. for diphtheria, and 91 per cent. for scarlet fever. Edinburgh had a slightly higher percentage for diphtheria and scarlet fever, but a lower percentage for typhoid fever. Glasgow had the same percentage for scarlet fever, and a slightly lower percentage for diphtheria and typhoid fever. The percentage of removals in Dundee was, as usual, considerably less than in the other three towns, being, except in the case of typhoid fever, only about one-half.

WORKSHOPS.

(Table XV.)

The number of workshops (exclusive of factories) registered at the end of last year was 970. In the preceding year (1909) it was 985; in 1908, it was 1,029; and in 1907, 1,071. There was a reduction of 15 in the workshops as compared with the preceding year, and 101 since the year 1907. The reduction since the previous year has been distributed over various trades—thus, bootmaking workshops have declined from 86 to 80; joinery workshops, from 35 to 28; and dressmaking and tailoring workshops, from 261 to 251. The workshops of painters and plumbers have each declined by 2, and of blacksmiths and bakers, by 1. On the other hand, fish-curing workshops have increased from 135 to 144. The reduction has been chiefly in workshops associated with building.

The reduction was, in several cases, due to the workshops becoming converted into factories, by the introduction of motive power, owing to the convenience and cheapness with which electrically-driven machinery can be installed and operated, even in small workshops. The proportion of factories in recent years has considerably grown at the expense of the number of workshops.

The following tabular summary of the work done during the year by the Sanitary staff, in the inspection and regulation of factories and workshops, has been prepared in accordance with the requirements of the Home Secretary, and was duly submitted to the Home Office. It ought to be noted that in the list of workshops the numbers relate solely to workshops, as legally defined in the factory and Workshops Acts, and do not include factories.

Excellent work continues to be done by the Sanitary Inspector and his staff in the sanitary control of the workshops in the city. Every workshop is regularly inspected, and an effort is made to keep it in accordance with the requirements of the Public Health Act and the Factory and Workshops Acts.

I have repeatedly taken occasion to refer to the considerable number of underground workshops that still exist. Probably, Aberdeen is no worse in this respect than other large towns; and there is even some reason for believing that it is better. But, however it may stand relatively to other towns, it is desirable that every proper opportunity should be taken of reducing the number of such workshops. The Sanitary Inspector and myself, when consulted in regard to the

TABLE XV.—FACTORIES, WORKSHOPS, LAUNDRIES, WORKPLACES, AND HOMEWORK.

1.—INSPECTION.

Including Inspections made by Sanitary Inspectors.

Premises.	No. of Inspections.	No. of Written Notices.	No. of Prosecutions.
Factories (including Factory Laundries),	628	86	1
Workshops (including Workshop Laundries)	1,340	139	—
Workplaces (other than Outworkers' premises in- cluded in Part 3 of this Report	132	9	—
Total,	2,100	234	1

2.—DEFECTS FOUND.

Particulars.	Number of Defects.		Referred to H. M. Inspector.	Number of Prosecutions.
	Found.	Remedied.		
<i>Nuisances under the Public Health Acts:—*</i>				
Want of cleanliness,	70	67	—	—
Want of ventilation,	—	—	—	—
Overcrowding	2	2	—	—
Want of drainage of floors	2	1	—	—
Other nuisances	27	31	—	—
Sanitary accommodation {	insufficient	12	3	—
	unsuitable or defective	44	42	—
	not separate for sexes	—	—	—
<i>Offences under the Factory and Workshop Act:—</i>				
Illegal occupation of underground bakehouse (s. 101)	—	—	—	—
Breach of special sanitary requirements for bake- houses (ss. 97 to 100)	57	56	—	—
Other offences (excluding offences relating to outwork which are included in Part 3 of this Report)	18	11	—	—
	232	213	—	1

* Including those specified in sections 2, 3, 7, and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

3. —HOME WORK.

OUTWORKERS' LISTS, SECTION 107.																			OUTWORK IN UNWHOLE- SOME PREMISES, SECTION 108.					OUTWORK IN INFECTED PREMISES, SECTIONS 109, 110.		
NATURE OF WORK.*	Lists received from Employers.						Addresses of Outworkers.			Prosecutions.			Inspections of Outworkers' premises.	Instances.	Notices served.	Prosecutions.	Instances.	Orders made (Section 110).	Prosecutions (Sections 109, 110).							
	Sending twice in the year			Sending once in the year.			Forwarded to other Councils.		Received from other Councils.	Occupiers as to keep- ing or sending lists.	Failing to keep or permit inspection of lists.	Failing to send lists.														
	Lists. †	Con- tractors	Work- men.	Lists.	Con- tractors	Work- men.																				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)								
Wearing apparel— (1) making, &c., (2) cleaning and washing, Lace, lace curtains, and nets, Artificial flowers, Nets, other than wire nets, Tents, Sacks, Furniture and upholstery, Fur pulling, Feather sorting, . . Umbrellas, &c., . . Carding, &c., of buttons, &c., Paper bags and boxes, . Basket making, . . . Brush making, . . . Racquet and tennis balls, Stuffed toys, . . . File making, Electro-plate, . . . Cables and chains, Anchors and grapnels, . Cart gear, Locks, latches, and keys, Pea picking,	14	—	267	3	—	4	—	4	—	—	—	131	—	—	—	—	—	—								
TOTAL.	14	—	267	3	—	4	—	4	—	—	—	131	—	—	—	—	—	—								

* If an occupier gives out work of more than one of the classes specified in column 1, and subdivides his list in such a way as to show the number of workers in each class of work, the list should be included among those in column 2 (or 3 as the case may be) against the principal class only, but the outworkers should be assigned in columns 3 and 4 (or 6 and 7) into their respective classes. A footnote should be added to show that this has been done.

† The figures required in columns 2, 3, and 4 are the total number of lists received from employers who comply strictly with the statutory duty of sending two lists each year and of the entries of names of outworkers in those lists. The entries in column 2 must necessarily be even numbers, as there will be two lists for each employer in some previous returns odd numbers have been inserted. The figures in columns 3 and 4 will usually be (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name will often be repeated.

§ In view of the wide discrepancies found to exist between the totals in the two columns when the returns are added together, it is desired that care may be taken to give exact figures. Only those addresses should be counted which have actually been received from or forwarded to other Councils during the year covered by the report.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year.

	Number.	Average— 1803-1909.
Bakehouses,	18	25
Blacksmiths,	25	33
Bootmakers,	80	91
Fish Curers, }	144	131
Fish Packers, }		
Furniture, Makers of	51	58
Joiners,	28	37
Painters,	41	45
Plumbers,	27	32
Stonecutters,	26	30
Watchmakers and Jewellers,	36	38
Wearing Apparel, Makers of	251	285
Other Workshops,	243	285
Total number of Workshops on Register,	970	1,091

5.—OTHER MATTERS.

Matters notified to H.M. Inspector of Factories:—

Class.	Number.
Failure to affix Abstract of the Factory and Workshop Act (s. 133)	—
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5). {	Notified by H.M. Inspector, —
	Reports (of action taken) sent to H.M. Inspector —
Other	—

Underground Bakehouses (s. 101):—

Certificates granted during the year	—
In use at the end of the year,	8

formation of new underground workshops, have invariably objected to them. This we have done for several years, so that the underground workshops still to be met with are rarely of recent origin. We have, year by year, taken steps with regard to all of them to secure a reasonable amount of lighting and proper ventilation. In no case has a workshop been allowed to continue, to our knowledge, where daylight is not of itself adequate during the greater part of the day for the lighting of the workshop.

As I have previously suggested, the time appears to have been reached when the regulations that are applicable to bakehouses should be enforceable also in regard to all workshops, and when the sanitary construction of workshops ought to be put on the same level by legislation as the construction of dwelling-houses. Underground dwelling-houses have for many years been prohibited, unless complying with very rigid requirements. The height of the ceiling is regulated, as also the amount of

window space. Corresponding regulations do not exist for ordinary workshops, in spite of the fact that the cubic space allowed by law for each occupant of a workroom is considerably less than is ordinarily required for each inmate of a dwelling-house, namely, 250 cubic feet, as compared with 400. When regard is had to the physiological activity of workshop occupants, and to the effluvia not infrequently associated with certain trades, it is almost more necessary in workshops than in dwelling-houses to make provision for meeting every reasonable sanitary requirement. The health of a workman is his most valuable asset, both for himself and his employer, and nothing within reason should be left undone to prevent its impairment.

It must, however, be admitted that workmen themselves are not infrequently more to be blamed for the foul air in their workroom than are their employers, upon whom the responsibility rests for the proper construction of the workshop. In many workshops ample means of ventilation are provided, but are too frequently neglected. All windows and ventilators are often deliberately closed, especially in cold weather, so that the air of the workshop rapidly becomes foul. A great advance will be made in the health of workmen when they come properly to realise that a constant supply of fresh air in the workshop is almost more important for the maintenance of good health than anything else that could be named. In the construction of workshops it seems to be necessary that openings for ventilation should be provided that are not capable of being closed. And it is a question whether some minimum standard of air impurity should not be laid down by the Home Office or by Parliament, on which a basis for regulation might be made possible.

As I have already remarked in an earlier part of the report, good ventilation is as much lacking in many offices as in workshops—possibly, more lacking. It is to be hoped that one of the greatest benefits of the phthisis pavilion at the City Hospital will be the education of the people of the city in the readiness with which even sick persons become habituated to live in rooms with constantly wide-open windows. Ordinary colds are practically unknown among the occupants of such pavilions, even in the severest weather.

BAKEHOUSES.—The bakehouses, of which there were 44, including 9 certified underground bakehouses and baking-rooms, were, as usual, inspected every quarter during the year, and were found, on the whole, to be in a satisfactory condition, although it is difficult in some cases to get the occupants of bakehouses to realise that the standard of cleanliness in workshops in which food is prepared should be much higher than in other kinds of workshops. There has, however, been a steady improvement in bakeshops in recent years.

No fresh certificates for underground bakehouses, within the meaning of the Factory and Workshops Acts, were granted during the year. One plan for a new bakehouse was submitted during the year, and reported on by the Sanitary Inspector and myself.

Towards the end of the year, for certain Government purposes, I prepared a special report on the condition of all the bakehouses in the city. In the collection

of material for the report I received much assistance from the Sanitary staff. It may be useful for subsequent reference to give the substance of this report:—

The bakehouses are divided into two main groups of (1) factory bakehouses—that is, bakehouses with motive power—and (2) workshop bakehouses—that is, bakehouses without motive power. Of the former there are 26, and of the latter, 18.

The larger bakehouses are nearly all of comparatively modern construction, and have been built within the last thirty years—several of the largest being established in the early “eighties.” A few, however, belong to a much earlier date, one having been established in 1795. Two began between 1830 and 1840, one between 1840 and 1850, two between 1860 and 1870, seven between 1870 and 1880, twelve between 1880 and 1890, seven between 1890 and 1900, and the remaining twelve between 1900 and the present date.

Workers.—The total number of workers in all the bakehouses at the close of 1910 was 438, of whom 45 were women, and 72 were young persons (mostly males) under eighteen years of age.

The number of workers in the three largest bakeries was 119, 45, and 38 respectively. In the remaining bakehouses the number varied from 23 down to 1. In as many as 24 bakehouses, or more than a half of the total bakehouses (mainly workshop bakehouses), the workers did not exceed 5 in any one bakehouse.

Underground Rooms.—In only one of the factory bakehouses, and in only two of the workshop bakehouses, are all the bakerooms underground. In 5 bakehouses there are underground pastry-rooms, but the main bakerooms are not underground. All the underground rooms comply with the requirements drawn up by the Town Council in 1903 under Section 101 of the Factory and Workshop Act, 1901. Many bakers prefer to have their pastry-rooms underground, in order to keep them cool.

Provision for Storage.—In 9 of the bakehouses the flour and other materials required for baking are stored in the bakeroom itself. In the remaining bakehouses the store is separate from the bakerooms; and in 9 cases, including 3 bakehouses with their bakerooms underground, it is underground. The stores are usually satisfactory.

Floor of Bakehouse.—In 36 of the bakehouses the floor consists of concrete, although in 5 of these the floor of one or more of the smaller rooms is constructed of wood. In 3 bakehouses, Caithness flag-stones are used for flooring, and in one bakehouse adamant slabs have been laid. In only 4 bakehouses are the floors entirely made of wood. The floors are, on the whole, in good order. A point is made in the regular inspection of the bakehouses to see that any defect in the floor is made good. Holes may form in concrete floors, especially if the material is not of the best quality. In several instances, concrete flooring has, at the instance of the Public Health Department, been substituted for wooden flooring, as it is more easy to keep the former clean.

Walls.—The outer walls are in every case built of stone or brick. In 11 bakehouses the inner side of the walls is not surfaced with plaster or cement. In 28 bakehouses the walls are so surfaced. In 4 of the 28, one or more of the rooms, usually store-rooms, are lined with wood. In 4 bakehouses glazed bricks or tiles

alone are used for lining the walls. Glazed bricks are also used in some of the bakerooms of bakehouses in which stone or plaster is employed.

Ceiling.—In 28 of the bakehouses the ceilings are surfaced with plaster, and in 2 with concrete. In the remaining 14 the ceiling is constructed of wood. The Public Health Department has, as far as possible, discouraged the use of wood in ceilings where rooms exist above the bakehouse, unless means have been taken to prevent dust passing down through the joints of the flooring. Plastered ceilings are, of course, effective in preventing dust passing down from the floors of upper rooms. In most of the bakehouses in Aberdeen with wooden ceilings there are no rooms of any kind above the bakehouse.

The height of the ceiling varies from 7 feet 4 inches up to 26 feet. In only 2 was the height under 8 feet. One of these is an old bakehouse, established in 1847, in which only two persons work, including the occupier; and the other is connected with a small eating-house and pie-shop, in which the occupier himself does all the baking required for the shop. Six bakehouses have their ceilings at a height of 8 feet and under 9 feet. Two of these are underground bakehouses, with ceilings of 8 feet and 8 feet 11 inches respectively. The only remaining bakehouse, with all its baking-rooms underground, has its ceiling 10 feet high.

In those bakehouses that have one or more of their pastry-rooms underground, the height of the pastry-room is in accordance with the requirements laid down by the Town Council under the Factory and Workshop Act of 1901, and in no instance is under 8 feet if more or less continuously occupied during the working day of the bakehouse, or under 7 feet where it is occupied for not more than half of the working day.

Ovens and Hot-plates.—In the three largest bakeries the number of ovens is 44, 16, and 11 respectively. The number in the remainder varies from 7 down to 1. In every bakehouse, except one, there are one or more baking-plates—usually gas-heated. These plates help to make some of the bakehouses unduly hot in summer, and also pollute the air with combustion products, as they are frequently without flues.

Motive Power.—The motive power used in the factory bakehouses is derived from steam in only two cases. In 12 it is obtained from electricity, in 10 from gas, and in 1 from a combination of gas and electricity.

Drainage and Water Supply.—There is no bakehouse in Aberdeen that does not possess a modern drainage system in good condition, with proper trapping and ventilation. If any suspicions arise as to defects in the drains, the drains are at once tested, and, if defects are found, the owner is required forthwith to make them good.

Every bakehouse is provided with a water supply inside the bakehouse. The water supply is obtained from the water mains of the city, and the taps usually discharge over sinks, but in some cases the taps discharge over gratings on the floor connected with trapped drains. The number of taps and sinks varies with the extent of the bakehouse.

Sinks and Wash-basins.—Every bake-house, except one small bake-house, is

provided with one or more sinks. A considerable effort has been made for a number of years to get fixed wash-hand basins, with a water supply, introduced into each bakehouse, with the result that about three-fourths of the bakehouses are now provided with such basins. Difficulty, however, has been found in getting the workmen to use the basins. They seem to prefer to make use of the sinks. This may be partly due to the objection taken by the occupiers to the provision of wash-hand basins as being an unnecessary sanitary refinement.

Latrines.—Every bakehouse is provided with one or more water-closets, so situated as to be convenient for the workmen, and, at the same time, complying with the requirements of the Factory and Workshop Act, in respect of not opening directly into any bakeroom. The water-closets, along with the general drainage arrangements, are maintained in good condition and are subject to frequent inspection.

Cleanliness.—The standard of cleanliness in some of the bakehouses is not quite so high as one could wish. The chief cause for complaint is in regard to the condition of the floors, on which the flour tends to form a hard cake, which can only be removed by regular scraping. Ordinary brushing is insufficient. In some of the bakehouses the scraping of the floor is regularly attended to. In others, considerable difficulty is experienced in getting the bakers to clean the floors sufficiently often and with sufficient thoroughness.

The walls are usually in good condition, as the inspectors, who make their visits quarterly, are in the habit of requiring the walls to be washed, lime-washed, or painted, as the case may be, in the event of their being found to be dirty. Some difficulty is experienced in bakerooms, with plastered walls, in keeping the plaster in a proper condition of repair, and notices have frequently to be sent for such repairs. They are, however, usually carried out without unnecessary delay.

As regards the tables, it is customary for the bakers to scrape the surface of the tables at the close of each day's work. This is, as a rule, well attended to, but in some cases the occupiers need more or less constant stimulation to greater cleanliness of their tables.

The remarks made in regard to the tables apply equally to the utensils. In a large majority of the bakehouses, in order to encourage personal cleanliness among the workmen, the introduction of wash-hand basins, separate from the sinks, has, as already stated, been insisted on. In a few cases, the occupier preferred to provide an additional sink in place of a wash-hand basin.

A framed notice against spitting on the floor was supplied to each bakehouse by the Public Health Department about three years ago.

Lighting.—The lighting of the bakehouses, except the underground rooms, is, on the whole, good. In 26 bakehouses, the lighting is obtained from windows in the walls; in 11, it is procured partly from such windows and partly from roof-lights; in 7, the light is derived from roof-lights alone.

The lighting of the underground rooms, although only in a few instances good, is in every case sufficient to prevent the necessity for the use of artificial light during the day in ordinary weather.

For artificial lighting, gas is used in all the bakehouses except 5. These 5 are supplied with electric lights. In one of the bakehouses lighted with gas, electricity is also used.

The provision for artificial light is in every case adequate.

Ventilation.—The Sanitary Inspector and myself have been insistent upon the provision of suitable and adequate means of ventilation in every bakehouse. Considerable difficulty has, however, been experienced in these, as in other workshops, in getting the employer and his workmen to keep the ventilators sufficiently open. The ventilation is obtained, partly, by opening windows, but, more frequently, by opening roof-lights, aided in many cases by tube and louver ventilators in the ridge of the roof. In the three largest bakehouses, ventilating fans are used to assist the ventilation. The ventilation of underground bakehouses is unsatisfactory in so far as, in order to procure through ventilation, the ventilators in the wall next the street are usually only a few inches above the level of the pavement, and are, therefore, liable to admit much street dust.

In the accompanying table will be found the results of a few examinations of the air of the principal baking-rooms of certain typical bakehouses, in respect of the amount of carbonic acid and the number of germs. The examination was, in each case, made without preliminary notice, and without any alteration of the amount of ventilation found to be in operation at the time of the visit. In rather more than half the bakehouses visited, the means of ventilation were not in use, and in most of the others the means were only partly in use. This is due to the tendency of workmen in cold weather to keep ventilators closed. A note is made in each case where gas jets were burning at the time of the examination.

In no case, it so happened, were any gas-heated hot-plates in use at the time of sampling the air.

The examination showed that the carbonic acid varied from .09 to .14 per cent. As care was taken to avoid making the examination during foggy weather, the proportion of carbonic acid in the outside air may be taken as not exceeding .04 per cent. Altogether, the air of 12 bakehouses was examined, and in 6 of these the carbonic acid exceeded .10 per cent. Practically, in all these 6 bakehouses, the means of ventilation were either not in use at all or only in slight use.

As regards the germ content of the air of the bakeries, the number of growths of bacteria and moulds was somewhat high as compared with the number for ordinary dwelling-rooms. But it is necessary to make allowance for the fact that the examination of the air was in each case made while baking was going on, and the atmosphere was more or less charged with a considerable amount of dust. On gelatine plates, the number of bacterial growths was usually under 10, although it rose in one case to 31, and in another case it was uncountable. On agar plates, the growths were more variable, being in some cases very few, and in other cases so numerous as to give difficulty in counting.

Temperature.—The observations of temperature given in the table relate, as will be seen, to winter only, and they show that the temperature in the selected bakehouses, taken in the early forenoon, after work had been going on for several

TABLE XV. (A)—ABERDEEN.—EXAMINATION OF AIR OF CERTAIN BAKEHOUSES.

BAKEHOUSE.	Date of Examination.		Number of Workers at visit.	Strength of Wind according to scale of 10 degrees.	Means of Ventilation in use.	Gas Jets burning (no Hot Plates in use).	Temperature. (°F.)		EXAMINATION OF AIR OF BAKEROOM.																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
									Carbonic Acid.	Germ Counts on 3½-in. plates exposed for 3 minutes.		Agar (cultivated at 37° C. for 48 hours).																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
	Per cent.	Gelatine (cultivated at 29° C. for 72 hours).					Bacteria. } Uncountable.	Moulds. }																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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* Underground Bakeroom.

hours, ranged from 56 to 67 deg. F. The temperature of the atmosphere outside, during these observations, was from 32 to 41 deg. F.

A large number of additional observations of temperature (not given in the table) were made in certain other bakehouses towards the end of December, when the outside temperature was about 40 deg. F. The results were practically the same as those recorded in the table. The temperature of such bakehouses as had all their rooms underground was, on the whole, lower than that of the others.

In summer, the temperature inside the bakehouses is naturally higher, but in summer the means of ventilation are much more freely made use of, so that the rise in temperature is not so great as might be expected from a perusal of the winter observations. Speaking from the impression left by visits to bakehouses in summer, I do not think that many of them are overheated, provided the means of ventilation are in full use.

DAIRIES.—The dairies have been regularly inspected throughout the year, and their condition was, as a rule, found to be satisfactory. A number of small additions, alterations, and repairs were carried out at the instance of the Sanitary Department.

The chief defect in Aberdeen, as in many other towns, is in regard to the proper control of the milk supply from dairies outside the city. Fully four-fifths of the whole milk supply of the city comes from dairies over which the city exercises no direct control. It has frequently been suggested in these reports that an arrangement might be come to under which the examination of such dairies, or, at least, of the cows in such dairies, would be undertaken for the city by an inspector appointed by the Corporation. There has been an undoubted improvement within recent years, both in the quality of the milk and its freedom from impurity, but much still remains to be done to bring the milk up to attainable standards. A systematic inspection on behalf of the consumers, as represented by the municipality, would help materially in reaching the end in view. For several years, in addition to the inspection of dairies by a dairy inspector of the Sanitary Department, Mr. M'Lauchlan Young, F.R.C.V.S., has regularly inspected the cows in each dairy. It is understood that he is about to resign his appointment in connection with the Public Health Department, on account of a change in his duties as Lecturer in the University. It is well worthy of the consideration of the Town Council whether Mr. Young's resignation should not be taken advantage of in order to provide a veterinary inspector, who would, with the consent of the various dairymen supplying milk from outside the city, visit their dairies at least once a quarter and inspect their herds. With certain other veterinary duties that could be undertaken for the Corporation, there would probably be enough of veterinary work to occupy the whole time of the veterinary inspector. He would thus be independent of private practice, and would be free to carry out his duties without any possible bias. This has been Mr. Young's position, so far as freedom from private practice is concerned, and he has carried out his duties with much judiciousness and with distinct advantage to the milk supply of the city, in so far

as obtained from dairies within the city boundary. Although there is no legal power enabling such a veterinary inspector, as I have indicated, to visit dairies outside the district of the local authority appointing him, I believe it would not be difficult to arrange with practically all the dairymen supplying milk to the city to permit regular inspection by such an officer. A list of the dairymen consenting, and complying with the recommendations of the inspector, could be kept in the Public Health Office, and be available for the information of all citizens. The presence of a dairyman's name on this list would be a guarantee that the milk from his dairy was being produced under conditions satisfactory to the municipal veterinary inspector. Already, several of the larger dairy companies in the city insist upon such a veterinary inspection of the country dairies with which they contract for their milk supplies, and, so far as I am aware, no difficulty has been met with in carrying out the arrangement.

TUBERCLE IN MILK.—I have already, under "Bacteriological Examinations," referred to the examination of 34 samples of milk in the bacteriological laboratory of the University, 33 being for tubercle. They were all tested by inoculation of guinea-pigs, but in no instance was a positive result obtained. About one-half of the samples (16) were taken from milk supplies produced within the city, and the remaining 17 were from supplies coming from outside the city.

The number of examinations of milks for tubercle in Aberdeen has not, so far, been large. Previous to 1910, 32 had been taken, and, of these, only 1 was found definitely to contain tubercle. There was also one milk which yielded a doubtful result, but, on the whole, the evidence was against it being tuberculous. We have thus, up to the end of the past year, examined 65 milks for tubercle, with only one positive result, or about 1·5 per cent. This is very satisfactory, as it is not uncommon in large towns in the south to find evidence of tubercle in 5 to 15, and even 20 per cent. of all the milk supplies. It may be added that the single milk found to be tuberculous was obtained from a dairy outside the city. At the same time, it would be wrong to suppose from these results that tuberculosis is very rare among milk cows in this part of Scotland. The slaughter-house shows that tubercle is probably as common here as elsewhere; but as the tubercle bacilli in milk is met with, as a rule, only when the animal is suffering from tuberculosis of the udder, it frequently happens that a cow, otherwise tuberculous, is yielding milk free from tubercle bacilli. As a rule, it is only older cows that develop tuberculosis of the udder. The cows in the dairies in Aberdeen and the surrounding district are mostly young cows, the practice being to feed off a cow at the close of the period of lactation, and to replace it by a fresh young cow.

INSPECTION OF PLANS.

As usual, a considerable number of plans—chiefly of factories and workshops, and especially of those in which foodstuffs are prepared—were examined and reported on by the Sanitary Inspector and myself. Thus, plans for 19 new buildings,

or alterations to existing buildings, were dealt with, 12 of which related to works in which foodstuffs were prepared, including 7 fishcuring works. In the previous year, the number of plans examined was 14. Several recommendations in regard to improvements in lighting and ventilation, paving of floors, and the provision of sufficient sanitary conveniences were approved by the Town Council and given effect to.

OFFENSIVE TRADES.

The offensive trades in Aberdeen, within the meaning of the Public Health Act, are concerned chiefly with tallow melting or oil extracting from ox bones or fish livers, soap boiling, slaughtering, knackerings, hide factoring, and the manufacture of manures, including fish manure and a similar product known as fish meal.

During the year two new businesses under the Offensive Trades section of the Public Health Act were established with the sanction of the Local Authority—one of tallow melting, and the other of fish oil manufacturing. The former is on a small scale. Considerable negotiations took place with regard to the proposal of fish oil manufacturing, for the purpose of securing that the best possible means would be used to prevent the escape of noxious effluvia. The Sanitary Inspector and myself were eventually satisfied with the plans of the buildings and of the machinery, and recommended the Town Council to give its sanction. The works were put up in accordance with the plans, and after running for a few weeks they were acquired by a competing manufacturer of fish oil, and have since been closed.

Another application for a fish oil manufactory was dealt with, and sanction granted after similar negotiations, but the applicant subsequently departed from carrying out the proposals under the sanction.

The manufacture of fish oil is a growing industry in the city, and, in its modern form, is of comparatively recent origin. The oil belongs to two distinct classes. One is cod liver oil for medicinal purposes, the other is fish oil, as extracted from all kinds of fish livers. There are certain works in the city which confine the extraction of the oil to medicinal cod liver oil. This oil is made exclusively from the fresh livers of cod, the livers being heated by steam in open tanks, and the oil skimmed off in the usual way. The liver residue is also pressed in order to remove the whole of the oil. The oil is subsequently clarified in a room kept at a temperature below the freezing point. With perfectly fresh livers, and careful attention to all the processes, an excellent quality of oil is thus being produced in the city, equal to the best Norwegian oil. The manufacture of such cod liver oil can usually be carried on without practically any nuisance.

The manufacture of other forms of fish oil from fish livers in general is much more apt to be attended by offensive emanations, on account of the livers being frequently, especially in warm weather, in a more or less putrid condition before being dealt with. The livers are mostly obtained from trawling boats, on which the fish are usually gutted immediately after being caught, and the livers are thrown into barrels without any attempt to prevent putridity. As the trawlers may remain at sea for one, or even two to three weeks, the livers cannot fail to

be distinctly putrid before being landed at Aberdeen. Such livers can only be treated in tightly-closed metal tanks or digestors, and special means must be taken to remove and condense the effluvia. When the treatment of such livers was first introduced into Aberdeen, complaints of offensive odours from the works were not uncommon, but, owing to improved methods and to greater care in the process, few, and only slight, complaints have been received in more recent times. The works, however, are situated in a part of the town in which there are practically no dwelling-houses, although they are close to other kinds of manufactories.

I referred at some length in the report for the preceding year to the question of the manufacture of fish meal and to the conclusions arrived at by the Public Health Committee in regard to the offensive effluvia that appear to be always associated with such manufacture. During the past year a considerable number of complaints were received regarding a business of this kind in Palmerston Road that had been commenced without the sanction of the Town Council, on the plea that such a business was not at the time of the establishment of this manufactory included in the list of offensive trades as given in the Public Health Act. The works were frequently visited by the Sanitary Inspector and myself, and, as efforts were being made, by improvements in the apparatus used and in the structure of the works, to reduce the effluvia, we thought it right to allow the owner some further time to complete the improvements. The manufactory has since been transferred to other owners, who have introduced new methods for dealing with the effluvia, but it still remains to be seen how far they will be successful. As this work is situated in the immediate vicinity of dwelling-houses, although in an industrial part of the city, it is very desirable that it should be carried on without any offence to the neighbouring residents, or even to the employees in the adjacent works. Indeed, some of the strongest complaints have come from such employees.

Not only were the effluvia from this manufactory complained of during the year, but considerable annoyance was also caused in the vicinity of the Upper Dock through the discharge into it of the condenser water from the manufactory. The manufactory is situated at a considerable distance from the dock, but it had obtained a connection with an old burn which runs into the dock. The offensive odour at the exit of the burn into the dock was probably in part due to the effect of the heated condition of the condenser water favouring the decomposition of other organic matter present in the water of the burn and of the dock itself. This matter was dealt with by the Sewerage Committee, and the owner of the manufactory was compelled to divert the discharge of the condenser water from the burn into the street sewer.

An application was received by the Town Council during the year for permission to establish a business for the manufacture of bone manure by crushing bones, and also for the mixing of manures. The site proposed was convenient for railway access, being on the side of the goods railway from Waterloo Station, and near to the Commerce Street bridge.

The Sanitary Inspector and myself were of opinion that the business, under certain stipulated restrictions, might be allowed to be established on the site

selected, but the Town Council subsequently refused sanction. As instructed by the Town Clerk, the Town Council were of opinion that no restriction, such as was suggested, could be legally imposed, and they also felt that the site was too near to dwelling-houses.

The decision of the Town Council in this case raises an important point as to the interpretation of the Offensive Trades section of the Public Health Act. Is it competent to grant a restricted sanction to an applicant under this section? May an applicant who undertakes, say, to confine his business, as a manure manufacturer, to the mixing of manures—some of which, such as nitrate of soda and the potash salts, are entirely free from odour, and to the grinding of phosphates and bones, without the use of any chemical or evaporating process—may such an applicant be granted sanction to establish the business of a “manure manufacturer” under the Act, and, later on, in spite of his undertaking, may he proceed to manufacture any kind of manure, such as dissolved bones, superphosphates, or fish manure. Even if the particular applicant honourably keeps to his undertaking, it is the business and not the man that is recognised under the Act. The applicant may transfer his business to another owner without fresh sanction of the business by the local authority. It would appear to be desirable that the Act should be amended so as to allow a local authority to restrict their sanction to any specified part of each of the businesses enumerated in the Act.

SLAUGHTER-HOUSES.—The slaughter-houses, of which there are seven in the city, including one large slaughter-house in Hutcheon Street belonging to the Flesher Incorporation, were regularly visited throughout the year, and are being kept in good condition.

I referred at considerable length in the report for the preceding year to the need for an additional meat inspector, and to a report on the subject to the Public Health Committee by the Sanitary Inspector and myself. An additional meat inspector was appointed in the course of the past year, so that two inspectors are now engaged, under the direction of the Sanitary Inspector and myself, in looking after the slaughter-houses, butchers' shops, the Fish Market, and the provision curing works in the city. Every doubtful case is referred to the Sanitary Inspector and myself, and although a large number of seizures were made of unsound food (633 seizures, embracing upwards of 109 tons of all kinds of food, but chiefly beef and fish), I am glad to be able to report that it was not found necessary to take proceedings against any of the owners. The arrangements with the occupiers of slaughter-houses and provision works are such that it is rare now to find any attempt being made to dispose of food of uncertain condition without previously obtaining the opinion of the meat inspector as to whether it is fit for human food or not. All doubtful food is kept back from sale until it is inspected during the daily rounds of the inspector or on special summons to him. These satisfactory arrangements are helped considerably by the slaughter-house bye-laws, which compel the slaughterer at once to give notice to the Public Health Department of any carcase which is diseased or that even has the appearance of being diseased or unsound.

Based on a form of card in use by my friend Dr. Wilson, Medical Officer of Health of Lanarkshire, I introduced during this year an improved card for the exact record of the condition of each carcase seized as unsound. The card, which is a double one, contains on one side an outline, in yellow, of the carcase, and on the other side headings for entries. The meat inspector is instructed to shade on the diagram the diseased parts, and to mark diseased glands, a red pencil being used for tuberculous disease and a black for other diseases. The parts of the carcase seized are encircled with a line. This card is found to be of great utility in preserving a proper record of each seizure, and I can warmly recommend its adoption in other districts where not already in use.

Public Health (Regulation as to Food) Act, 1907.—Very little food, apart from cereals, is imported direct into Aberdeen, and no part of such food required to be dealt with under the Regulations.

HOUSING OF THE WORKING CLASSES.

No houses were closed during the year, either under the Housing of the Working Classes Act or the Aberdeen Corporation Act, 1881, but 13 underground dwellings were closed under the Public Health Act, as not being in compliance with the requirements of the Act.

No action was taken under Sections 17 and 18 of the Housing and Town Planning Act, although a large number of inspections of houses were made under the local Acts and the Public Health Act. The powers, in respect of insanitary and uninhabitable dwellings, under the new Housing Act are, for ordinary purposes in Aberdeen, less satisfactory, and are more difficult to work than the powers under the local Acts, especially the Act of 1881.

As has been previously reported, large clearances of old property have been made within recent years in Aberdeen, partly for the direct purpose of removing insanitary houses and gutting insanitary areas, and partly in connection with City Improvement schemes. The older parts of the city were all carefully surveyed some years ago, and all the more insanitary houses were then closed, and several have been closed from time to time since, including the houses in the Exchequer Row area, which was dealt with under the Housing of the Working Classes Act. Recently, a fresh survey of the older houses in the city is being undertaken, with a view to determining whether further closures and demolitions would be justified.

A large amount of work continues to be done in order to secure the proper hanging of window sashes so as to admit of the windows being easily opened for purposes of ventilation. Considerable difficulty has been experienced in persuading the owners and agents of such property to introduce such hanging. Under Section 75 of the Aberdeen Police and Waterworks (Amendment) Act, 1867, power is given to the Local Authority to require that the windows of a dwelling-house should be "so constructed or hung as that at least one-third of each window may be conveniently and easily opened." The Sanitary Inspector and myself contend that an

ordinary sash window, if not hung, is not in compliance with this section. It is practically impossible by any arrangement short of hanging, or the use of a cord and pulley, to move conveniently the upper sash of a window, which is the sash most suitable for opening in order to ventilate the room properly. The lower sash may be lifted by hand, but, where the window is heavy, the strain in lifting is often considerable, and more than a woman in delicate health should be obliged to undertake. Even if it were more easily lifted, there is still difficulty in keeping it in position after it is raised, and in varying the position in relation to the amount of ventilation required and the state of the weather. It is of great moment to the health of the occupants of every household to be able to ventilate easily every room of the house. If, as some legal agents of property contend, the local Act does not confer the powers contended for, it is highly desirable that such powers should be explicitly obtained, either in a general Act of Parliament or in some future local Act.

The value of the open window was never more fully recognised than at present, and we must look to it as one of the greatest helps in preventing the onset of tuberculous disease, especially in its pulmonary form, in families. Every civic authority in this country has spent many years and a vast amount of official labour in securing good drainage and well-ventilated drains, with a view to preventing the contamination of the atmosphere of a house with drainage emanations. I have no hesitation in saying that, great as have been the advantages to the public health from the attention given to good drainage, still greater advantages would accrue from equal attention being now bestowed upon the ventilation of dwelling-rooms. For, after all, probably the most dangerous pollution of an atmosphere is the pollution which comes from human breath in overcrowded and ill-ventilated rooms. It is this pollution that, more than any other, has favoured the propagation of phthisis.

As I have repeatedly said, if abundance of fresh air can cure an incipient case of phthisis, it could still more effectively have prevented the case occurring; and prevention is ever more satisfactory and much less costly than cure.

Corporation Lodging-house.—The Corporation Lodging-house continues to be of much service to the city in providing a sanitary and properly regulated shelter for some of the poorest classes. It is fortunate in being managed by a superintendent who has great sympathy with these classes, and has had a long experience of their habits. It is to be regretted that the revenue from the lodging-house is still considerably under the sum required to meet the expenditure, including interest and sinking fund. At the end of last financial year, the deficit on the year's working was upwards of £600.

WEATHER AND DISEASE.

(*Tables XVI. and XVII.*)

As in the reports for the preceding two years, I have prepared a table summarising the state of the weather for each month throughout the year, and

comparing it with the average for the ten years 1897-1906. I have also supplied a table containing the number of deaths in each month from the more important diseases, together with the average number for the preceding ten years. The numbers in this table have been corrected for transferred deaths. The number of persons dying at each age-period during each month is also given.

The meteorological averages for the ten years show that, in Aberdeen, February is the coldest month of the year—elsewhere, it is more usually January—and that July is the warmest. They also show that December receives the least sunshine, and June the most—five to six times more than December. June is also the driest month, while December is the wettest. The mean daily range of temperature—or the difference between the highest and the lowest for the day—is greatest from April to September, and is lowest in January. It increases rapidly between January and April. Northerly winds are distinctly more prevalent in May than in any other month, easterly winds prevail most in June, westerly winds in December and January, and southerly winds in December and January. The most windy months are January and February, and the least windy are July and August.

In 1910, distinctly the coldest month was January (35·8 deg. F.); in the preceding year it was March. The warmest month was, as in the preceding year, August (56·3 deg. F.). The mean temperature of the ground at four feet beneath the surface was lowest in February (37·9 deg. F.), and was nearly 2 degrees under the average for that month. The highest was in August (53·9 deg. F.), when it was also under the average, by 0·5 degrees.

The amount of bright sunshine was, for the whole year, almost equal to the average (1,370 hours), the percentage of possible sunshine in each month being highest in May, with 38 per cent., and lowest in June and July, with 24 per cent., and December, with 20 per cent. There was a considerable deficiency of sunshine in the third quarter of the year.

The total rainfall for the year (27·8 inches) was somewhat under the average (29·3). The wettest month was November, with the unusually high rainfall of 5·5 inches, and the driest was June, with 0·7. The atmospheric humidity for the whole year was slightly above the average, and was highest in August, November, and December, with 83 per cent., and lowest in June, with 77 per cent.

Northerly winds were most prevalent in the summer months of June and July, and were least prevalent in February and December. Easterly winds were most pronounced in June, August, October, and December, but with a stronger northerly element in June than in the three other months, when there was a considerable southerly element. Southerly winds were most prevalent in the winter months of the year—January, February, March, and December—and also in August; in August and December, there was a strong easterly element, while in the other months the westerly element predominated. Westerly winds were most common in January, March, September, and November. The most windy month was December, and the least windy was September.

Turning to the table of deaths, we find from that part of it which gives the

TABLE XVI.—ABERDEEN.—METEOROLOGICAL RECORD FOR EACH MONTH (From King's College Observatory).

MONTH.	BAROMETRIC PRESSURE (at 32° F and Sea Level).				TEMPERATURE OF ATMOSPHERE.				Mean Daily Temp. of Ground (4 feet below surface).	RAIN-FALL (if Snow, indicate by S.)		SUNSHINE.		* WIND.								Velocity Average No. miles per day.				
	Inches.	Inches.	Inches.	Mean Daily Range.	Also- lute Highest.	Also- lute Lowest.	Mean Daily Temp.	Mean Daily Range.		Dura- tion.	Amount Inches.	Dura- tion.	Percentage of possible Sunshine.	N.	N. E.	E.	S. E.	S.	S. W.	W.	N. W.		Calm			
YEAR 1910.																										
January, .	30.41	28.85	0.31	39.2	6.6	35.8	9.2	77	85	1.9	54	24	25	5	22	9	127	294	142	120	...	248				
February, .	30.15	28.34	0.34	37.9	27.4	38.4	8.3	82	85	2.6	83	32	17	6	6	75	211	167	124	66	...	207				
March, .	30.62	29.10	0.21	39.6	28.9	42.6	9.5	79	65	1.5	131	36	8	3	6	122	210	103	148	144	...	202				
April, .	30.51	28.80	0.29	42.2	31.8	42.3	11.0	78	88	2.9	150	36	56	71	30	17	151	102	104	189	...	229				
May, .	30.40	29.02	0.21	44.9	34.2	48.5	11.1	80	65	2.4	190	38	95	82	104	67	96	83	113	104	...	177				
June, .	30.39	29.28	0.13	50.5	41.0	52.4	10.1	80	41	0.7	183	35	70	108	102	114	108	26	62	130	...	159				
July, .	30.24	29.27	0.16	52.5	44.0	53.6	9.0	81	65	1.5	128	24	114	70	60	126	108	27	31	208	...	187				
August, .	30.16	29.20	0.19	53.9	45.3	56.3	8.9	83	105	3.5	137	30	23	26	93	237	118	53	83	111	...	179				
September, .	30.53	29.69	0.15	52.8	40.9	52.3	11.6	79	39	1.1	102	27	85	7	28	58	101	115	127	199	...	152				
October, .	30.77	28.68	0.24	50.6	36.3	49.6	9.3	82	67	1.7	94	30	55	10	122	169	95	76	96	121	...	203				
November, .	30.21	28.48	0.28	45.0	25.6	38.1	7.8	83	187	5.5	78	33	20	10	15	52	77	84	194	259	...	251				
December, .	30.40	28.85	0.31	42.7	29.4	42.9	5.5	83	107	2.5	40	20	10	13	41	232	127	116	128	77	...	295				
Monthly Average	30.40	28.96	0.24	46.0	32.6	46.1	9.3	81	83	2.3	114	30	48	34	52	107	127	104	113	144	...	207				
Total for Year, .	...	...	...	...	...	...	...	...	999	27.8	1370	...	578	411	629	1278	1529	1246	1352	1728	...	...		
AVERAGE FOR TEN YEARS, 1897-1906.																										
January, .	30.60	28.80	0.31	41.1	25.9	39.0	7.6	81	74	2.1	45	20	22	8	16	73	155	219	139	111	0.1	246				
February, .	30.48	28.78	0.29	39.7	21.7	37.5	8.5	79	82	2.2	77	29	32	10	24	49	140	149	132	139	...	243				
March, .	30.36	28.85	0.27	40.2	24.5	39.9	9.4	78	97	2.3	109	30	64	22	39	83	143	151	101	141	...	227				
April, .	30.37	29.09	0.24	42.2	30.2	42.9	10.6	78	101	2.5	162	39	41	24	55	102	170	100	107	120	0.1	227				
May, .	30.43	29.16	0.19	45.6	34.1	46.8	10.6	78	101	2.7	177	36	120	57	74	93	136	67	63	132	1.2	205				
June, .	30.42	29.43	0.14	50.1	38.4	52.9	11.0	78	59	1.5	180	34	96	51	94	114	144	58	48	114	0.5	172				
July, .	30.32	29.40	0.17	53.4	43.6	57.0	11.6	77	77	2.6	166	32	68	51	72	102	138	97	99	116	0.9	164				
August, .	30.30	29.27	0.19	54.4	42.8	56.1	11.0	79	77	2.8	157	34	51	36	60	97	178	113	93	116	0.9	162				
September, .	30.43	29.19	0.20	53.2	37.8	53.9	11.2	80	72	2.1	133	35	40	20	38	90	176	127	117	114	0.4	180				
October, .	30.45	28.95	0.25	50.2	33.7	47.4	9.8	82	105	2.8	98	31	33	15	35	66	170	167	125	133	...	209				
November, .	30.49	28.88	0.26	46.8	27.5	43.4	8.1	82	101	2.8	54	23	36	9	29	82	142	179	137	105	...	241				
December, .	30.48	28.61	0.30	43.1	23.8	39.7	8.0	82	121	2.9	34	17	92	4	20	81	163	218	140	95	0.1	239				
Monthly Average	30.43	29.03	0.23	46.7	32.0	46.4	9.8	80	89	2.4	116	30	52	26	46	86	155	137	108	120	0.4	210				
Total for Year, .	...	...	...	...	...	...	...	...	1067	29.3	1392	...	625	307	556	1032	1855	1645	1301	1436	4.2	...

* To indicate the dominant direction, every duration of 100 hours and upwards is in thick figures.

TABLE XVII.—ABERDEEN.—NUMBER OF DEATHS FROM PRINCIPAL CAUSES IN EACH MONTH.

(Corrected for transferred deaths.)

MONTH.	CAUSE OF DEATH.										AGES OF PERSONS DYING.										Average Age at Death.									
	BIRTHS.	TUBERCULOSIS.						Influenza.	Typhoid Fever.	Diphtheria.	Scarlet Fever.	Whooping Cough.	Measles.	YEARS.					All Ages.											
		Dis. of Digest. System (incl. Diarrhoea).			Pneumonia.	Bronchitis.	Circulatory Diseases.							Diseases of Urinary System.	Convulsions.	Prematurity.	Malignant Diseases.	Under 1 Year.												
		Lungs (Phthisis).	Brain (Tub. Meningitis).	Abdomen (Tub. Peritonitis).			Other.	Cerebral Apoplexy, and Hemiplegia.	Other.	0-5	5-15	15-25	25-60					60+												
YEAR 1910.																														
January, . .	369	0	1	0	7	0	0	0	17	4	3	2	11	19	19	12	44	13	5	13	11	55	68	12	15	47	86	228	37.9	
February, . .	358	0	1	0	9	0	0	9	14	1	2	3	12	18	14	27	26	8	5	6	21	41	55	8	9	55	93	220	43.6	
March, . .	394	0	2	1	8	0	0	7	21	5	2	3	18	17	23	17	33	11	7	2	16	40	65	13	13	64	92	247	41.0	
April, . .	373	0	0	2	2	0	0	1	13	5	2	1	19	13	19	13	40	10	3	9	6	36	54	7	7	50	74	192	42.1	
May, . .	371	0	2	0	0	0	0	1	16	2	2	1	12	7	14	13	30	7	3	10	17	22	31	8	13	50	75	177	46.0	
June, . .	380	1	1	0	2	0	0	0	21	6	2	2	14	4	16	11	29	10	3	8	14	34	47	8	9	52	69	185	40.0	
July, . .	359	1	0	1	3	0	0	0	16	2	2	2	10	6	4	13	33	9	3	6	15	24	34	10	10	48	60	162	42.6	
August, . .	367	2	1	1	2	1	1	7	3	0	3	0	17	6	10	14	37	8	6	13	13	45	50	8	5	51	67	181	40.4	
September, . .	327	0	4	0	2	0	0	0	20	1	1	2	19	5	19	8	18	10	2	7	8	49	65	8	5	47	48	173	33.3	
October, . .	360	0	2	0	0	1	0	14	3	1	0	14	12	7	18	12	33	6	4	7	9	37	52	8	8	38	65	171	39.4	
November, . .	323	0	0	2	0	0	2	3	10	2	2	2	18	14	12	12	32	8	3	9	17	40	50	6	7	51	85	199	44.7	
December, . .	338	0	1	1	0	5	1	5	14	2	3	1	11	16	12	8	38	9	4	18	14	55	74	7	8	37	78	204	38.1	
Total for year 1910, }	4319	4	18	7	33	2	27	183	36	25	21	175	159	152	155	393	109	48	108	161	478	645	892	103	109	590	892	2339	40.8	
AVERAGE FOR PRECEDING TEN YEARS—1900-09.																														
January, . .	401	12	5	14	30	07	7	16	39	20	34	21	25	33	15	33	6	6	6	10	13	64	98	10	10	12	68	92	280	36.6
February, . .	358	8	12	08	23	04	7	18	38	20	22	18	22	27	13	29	7	6	6	10	13	62	92	10	10	12	58	84	254	36.0
March, . .	414	6	11	12	12	03	7	20	7	30	31	18	23	27	12	32	8	6	6	10	13	64	97	10	13	13	63	83	266	35.1
April, . .	413	32	11	05	08	06	40	19	44	34	18	18	21	18	12	30	7	6	6	10	11	58	84	9	13	60	72	238	35.3	
May, . .	425	18	10	03	12	07	15	20	6	39	32	20	15	13	12	29	7	47	9	11	11	51	74	9	12	55	72	222	36.4	
June, . .	408	11	5	03	07	03	24	21	34	33	25	17	9	10	29	43	37	8	37	8	11	42	59	8	12	55	61	195	36.6	
July, . .	402	14	49	06	05	04	05	15	31	26	21	17	13	9	11	25	49	5	8	14	42	57	7	9	47	58	178	37.0		
August, . .	375	17	32	06	12	03	07	15	41	21	22	21	9	7	11	23	8	37	7	12	44	61	7	10	47	59	184	36.3		
September, . .	371	9	27	11	15	02	03	13	29	28	28	26	12	9	8	23	5	44	8	13	54	71	9	10	45	51	186	33.0		
October, . .	407	38	25	14	19	07	08	18	28	19	17	23	14	15	11	27	5	40	8	12	57	74	8	12	50	60	204	34.1		
November, . .	368	8	32	13	23	06	18	13	26	28	16	20	16	17	13	27	47	47	10	15	57	79	8	9	53	67	216	35.8		
December, . .	390	12	5	18	23	03	34	18	26	30	23	19	21	25	14	29	7	7	7	10	12	65	92	9	12	57	81	251	35.4	
Average Total for 1900-09, }	4732	60	79	11	19	6	36	206	47	33	29	238	208	209	142	336	74	61	108	150	660	938	104	134	658	840	2674	35.6		

AVERAGE FOR PRECEDING TEN YEARS—1900-09.

average for the ten years 1900-1909, that the most fatal month for the population as a whole is January, with 280 deaths, and the least fatal is July, with 178 deaths. Infantile mortality reaches its minimum in June and July, with 42 deaths in each month, and its maximum in December, with 65 deaths. The proportion between the extremes is much the same for both, with a slightly greater difference for deaths at all ages. Deaths of children of the "school" age were most common in the first three months of the year, and least in July and August. At the "adolescent" age-period, the deaths are somewhat irregularly distributed over the months, but are inclined, on the whole, to be most numerous in spring and early summer, due to the large proportion of deaths from pulmonary tuberculosis at this age. At the higher age-periods, the greatest number of deaths is in January, and the lowest in September. During 1910, the highest mortality at all ages was in March, with 247 deaths, and the lowest in July, with 162, the maximum and minimum—but especially the maximum—being considerably lower than in the preceding ten years. The infantile mortality was highest in January and December, with 55 deaths, and lowest in May, with 22, and in July, with 24. In every month of the year, except in August, there were fewer infant deaths than the average for the preceding ten years, the reduction being most striking in the spring months. The temperature and the amount of sunshine during these months were, on the whole, considerably above the average, and may have helped to influence favourably infant life; but it is not clear that the difference in the weather for the whole year, as compared with the average, could have accounted for the striking fall in infantile deaths, amounting, over the whole year, to 182.

Apart from the question of the effect of the weather, the table of deaths shows that no zymotic was very busy in any month, excepting, perhaps, diphtheria during the first quarter. Phthisis caused most deaths in the first six months; pneumonia, in the first three months; and bronchitis, in the first four months. Deaths from diseases of the circulatory system were distinctly more prevalent than usual during the first quarter of the year, as were also deaths from diseases of the urinary system; but these latter deaths were above the average in almost every month of the year.

If the lungs are to be regarded as the organs that react most readily to weather conditions, and if bronchitis can be taken as a measure of this reaction, the most healthy months of the year in Aberdeen are ordinarily from June to October, while the most unhealthy are from December to March. Measured by this standard, the most healthy months last year were June to September, while the most unhealthy were January to April.

It is of interest to note that the average age at death, which was for the whole year 40·8 years, as against an average of 35·6 for 1900-1909—representing a gain of 5·2 years—was highest in May, with 46·0 years, and lowest in September, with 33·3. The low average at death in September, which is noticeable also in the table giving the figures for the ten years, is mainly due to the larger proportion of infants dying during this month relatively to the number of persons of advanced age.

WATER SUPPLY.

The year was rendered memorable in local public health annals by the unsuccessful fight of the Town Council before a committee of the House of Lords to secure powers to take from the River Avon an entirely new water supply for the city. The failure of the Council was largely due to the fact that the application was opposed by a considerable minority of the Council, who held that the existing source of supply from the River Dee could be sufficiently enlarged, and the water sufficiently purified, to render the supply adequate and safe for a considerable period of years. At the usual election of members to the Town Council towards the close of the year, the previous minority was converted into a majority by the action of the ratepayers in returning, in nearly all the wards, the candidates who favoured adherence to the present supply from the Dee, or who, at least, desired further inquiry into the possibility of making this supply adequate to the wants of the city. In order that the matter might receive the fullest consideration, the Water Department of the city has been separated from the Burgh Surveyor's Department, and a special Water Engineer has been appointed, whose first duty is to investigate fully the method by which the supply from the present source can be made sufficient for the wants of the city. There can be no doubt that, if the Town Council had succeeded in carrying the bill for the introduction of a new water supply from the River Avon, the City of Aberdeen would have been in possession of one of the very purest water supplies for any town in the whole kingdom. The present supply from the River Dee, as delivered in its present condition, is, as I have repeatedly stated, open to the risk of conveying the infection of water-borne diseases, such as typhoid and cholera, inasmuch as the water is obtained from an inhabited valley, and is not subjected to any process of purification. At the same time, it has to be admitted that the supply, even in its present unpurified condition, has not been proved to have been at any time within recent years the cause of any outbreak of water-borne disease in the community supplied by it. Too much weight must not, however, be attached to this immunity hitherto, as the same experience has been met with in towns in which there has suddenly occurred, after a long period of apparent freedom from visible harm, a heavy outbreak of typhoid fever that could be fairly attributed to water contamination. On the other hand, it cannot be denied that such danger as may attach to the present supply could be greatly reduced by the introduction of a proper system of purification, as by means of storage and filtration. Sufficient storage is almost of itself capable of destroying the germs of disease occurring in water, partly because of the uncongenial character of the element in which they are forced temporarily to live, and partly because of their being devoured by more vigorous organisms native to water. Experiments have shown that the vast majority of disease organisms die in water within three to four days, and that, in most cases, they become completely exterminated in from one to three weeks. Dr. Houston, the Analyst for the Metropolitan Water Board, is of opinion that storage of water for three weeks is sufficient to kill all disease-producing organisms. This opinion

has been arrived at from an examination of the Thames water, but it does not necessarily apply to all other river waters. The natural character of the water and the nature of the concomitant pollutions may considerably affect the life of disease organisms. There is some reason to believe that such organisms die out more quickly in a distinctly polluted water like that of the Thames than in a less polluted water, such as that of the Dee. It would, therefore, be advisable that experiments should be made with the Dee water before seeking to apply to it the conclusions derived from waters of different character and quality.

Filtration is also a well-known method of purification, regarding the efficacy of which there is now a long experience, but it is in some respects less reliable than storage, owing to the possible defects occurring in the skin of the filter, which is the effective part of the filter, and to interference with the action of the filter in winter weather. There are several instances on record of towns supplied with filtered water having suffered from water-borne epidemics, but it has been demonstrated in each case that the filters had not been in good working order. The almost universal opinion among water experts at the present time is that safety is to be found only in a combination of storage and filtration. With such a combination, there are grounds for believing that the Dee water could be rendered safe, and could be kept safe at all times, provided the storage and filtration are constantly and carefully supervised. There may, however, remain a sentiment—not by any means to be ignored—in favour of a water of such freedom from impurity as not to require submission to any method of purification. Such waters have, where readily attainable, been ever more highly prized than purified waters, however carefully purified. But the expense of obtaining such a supply is often much greater than that of procuring and purifying a supply from a more or less polluted water, and the community is entitled to say which, in all the circumstances, it is willing to be content with.

SEWERAGE.

Considerable progress was made during the year towards completing the extensive works for the rearrangement of the main lines of drainage of the city, and particularly in bringing the sewage of the Woodside and Old Aberdeen districts into the main sewer now discharging itself at Girdleness. The connection with the Girdleness main sewer was completed early in 1911.

DESTRUCTION OF REFUSE.

The disposal of the refuse of the city has given much concern to the Town Council, and especially to its Cleansing Department, for a considerable number of years. The bulk of the refuse has only a slight manurial value, and is no longer, either here or elsewhere, sought after by farmers, the cost of transporting it to the country being greater than the price farmers are prepared to pay for it. For some years, the refuse of the city has been got rid of in filling up waste holes, in

levelling a part of the Links, and in making certain roadways; but such outlets for it, within easy reach of the centre of the city, are now practically at an end. Even if they continued to be available, the dumping of such refuse in the vicinity of dwelling-houses, or in places much frequented by the people, is distinctly objectionable. I am glad, therefore, to be able to report that the Town Council has finally acquired the site for a refuse destructor to which reference was made in the report for the preceding year. The site is within the grounds of the former St. Nicholas Poorhouse, and is conveniently accessible from all parts of the city. The area is considerable, and will allow of the necessary plant being well separated from surrounding buildings, and, at the same time, will provide ample space to meet future possible extensions for many years to come. A refuse destructor has for several years been one of the most pressing sanitary wants of the city. The delay in providing it is not, however, without some advantage, inasmuch as the principles of the construction of destructors, with a view to the complete incineration of the refuse and the prevention of the possibility of nuisance, are now better understood, although only after a considerable number of partial failures in various parts of the country. It is now possible to obtain from any maker of repute a plant which the maker can honestly guarantee to be effective for its purpose, and free from nuisance if worked with proper care.

The Town Council propose to utilise the heat produced in the burning of the refuse for the making of electricity. There is no likelihood in the meantime, however, of their being able to make any use of the clinker, as in certain other towns. The large amount of granite dust and chips available in connection with the numerous granite yards and quarries in and around the city leaves no room for a profitable utilisation of clinker.

CITY HOSPITAL.

(Table XVIII.)

The extension of the hospital, referred to in the preceding annual report as having been commenced early in 1909, was completed towards the end of 1910. The extension provides 58 additional beds for patients and 13 additional bedrooms for nurses, as also a recreation room for the nurses. One of the pavilions has been constructed, in respect of windows and verandahs, so as to make it suitable for the treatment of consumptive patients on sanatorium lines, and began to be occupied with such patients early in February, 1911.

As was stated in last year's report, the whole system of ventilating the hospital has been altered from the plenum system, with fans and subterranean ducts and one central heating chamber, to a natural system of cross ventilation, with hot-water radiators throughout the wards. This system has proved, as was expected, to be much superior to the more elaborate plenum system. Indeed, the latter system had practically not been utilised for some years before the extension, except for the purpose of providing the necessary heat. The heating of the whole

ABERDEEN.—CITY HOSPITAL.—ANNUAL SUMMARY, 1910.
ZYMOTIC ADMISSIONS AND DEATHS DURING EACH YEAR FROM 1900 TO 1910 INCLUSIVE.

DISEASE.		1910	1909	1908	1907	1906	1905	1904	1903	1902	1901	1900	1900-1909.	
													Total	Annual Average
Small Pox,	Admitted, ...	0	0	0	1	0	0	3	0	0	7	0	11	1.1
	Died, ...	0	0	0	0	0	0	0	0	0	1	0	1	0.1
	Percent. of Deaths to Admissions, ...	0	0	0	0	0	0	0	0	0	14.3	0	...	9.1
Scarlet Fever, ...	Admitted, ...	613	871	1005	448	140	185	534	408	278	340	280	4489	448.9
	Died, ...	7	7	15	4	5	7	16	9	8	5	7	83	8.3
	Percent. of Deaths to Admissions, ...	1.1	0.8	1.5	0.9	3.6	3.8	3.0	2.2	2.9	1.5	2.5	...	1.8
Diphtheria,	Admitted, ...	272	244	239	174	192	127	131	120	107	101	82	1517	151.7
	Died, ...	32	22	15	14	17	7	9	8	8	5	6	111	11.1
	Percent. of Deaths to Admissions, ...	11.8	9.0	6.3	8.0	8.9	5.5	6.9	6.7	7.5	4.9	7.3	...	7.3
Typhoid Fever, ...	Admitted, ...	16	28	10	17	9	13	24	22	28	70	26	247	24.7
	Died, ...	2	2	0	4	0	3	2	0	1	1	2	15	1.5
	Percent. of Deaths to Admissions, ...	12.5	7.1	0	23.5	0	23.1	8.3	0	3.6	1.4	7.7	...	6.1
Typhus Fever, ...	Admitted, ...	0	0	0	0	0	97	22	0	0	0	0	119	11.9
	Died, ...	0	0	0	0	0	12	1	0	0	0	0	13	1.3
	Percent. of Deaths to Admissions, ...	0	0	0	0	0	12.4	4.5	0	0	0	0	...	10.9
Measles, ...	Admitted, ...	4	7	36	30	50	6	72	78	156	133	342	910	91.0
	Died, ...	0	1	1	11	3	0	1	9	3	4	9	42	4.2
	Percent. of Deaths to Admissions, ...	0	14.3	2.8	36.7	6.0	0	1.4	11.5	1.9	3.0	2.6	...	4.6
Other Zymotics,	Admitted, ...	20	29	22	44	17	12	29	17	32	18	14	234	23.4
	Died, ...	2	8	3	9	0	2	4	2	3	1	2	34	3.4
	Percent. of Deaths to Admissions, ...	10.0	27.6	13.6	20.5	0	16.7	13.8	11.8	9.4	5.6	14.3	...	14.5
Total Zymotics,	Admitted, ...	925	1179	1312	714	408	440	815	645	601	669	744	7527	752.7
	Died, ...	43	40	34	42	25	31	33	28	23	17	26	299	29.9
	Percent. of Deaths to Admissions, ...	4.6	3.4	2.6	5.9	6.1	7.0	4.0	4.3	3.8	2.5	3.5	...	4.0
Quarantine,	Admitted, ...	50	34	34	20	37	181	25	14	6	43	18	412	41.2
	Died, ...	7	6	7	5	6	6	3	3	0	0	0	36	3.6
	Percent. of Deaths to Admissions, ...	14.0	17.6	20.6	25.0	16.2	3.3	12.0	21.4	0	0	0	...	8.7

hospital, consisting of an administration block and seven separate pavilions, is carried out by means of steam supplied from a single installation of boilers at the Disinfecting Station, the heat being carried in the form of steam to the various pavilions, and there utilised to heat the water which circulates through the radiators. The self-acting syphon system, known as the Cable system, was adopted for this purpose. The syphonisers have required, so far, a considerable amount of attention to keep them in good working order. I am inclined to the opinion that probably a simple system of circulation of the hot water by gravitation would have been sufficient, the more that in hospital wards we are becoming more and more disposed to encourage, in all states of the weather, the freest possible ventilation. With such ventilation we find it less necessary than formerly to aim at the maintenance of a steady temperature. Indeed, it is not practicable to do so. In the pavilion devoted to consumptives we have not, since after the first two or three weeks, made any use of the hot-water radiators. The windows are so widely open that we find from actual measurement of the temperature inside and outside the wards in various kinds of weather that, with the radiators in full operation, there was no difference between the inside and the outside. It was, therefore, clearly wasteful to use the radiators. The radiators are, however, kept heated in the bath and dressing-rooms attached to the pavilion. In the other wards we have not ventured upon the same freedom of ventilation, and the temperature is maintained by the radiators at a minimum of 50 to 55 deg. in the coldest weather. A higher temperature could easily be maintained if the windows were not kept so widely open.

No class of patient, whatever may be the nature of the disease, seems to suffer harm from ample ventilation of the wards. As already stated in a previous part of the report, colds and catarrhs are practically unknown among either patients or nurses in the hospital. The more grave the case, the more does it seem to benefit from abundance of fresh air. The most dangerous type of case among the numerous scarlet fever cases admitted to the hospital is the septic case; no treatment for such a case seems so obviously beneficial as placing it in the most freely ventilated part of the ward. In suitable weather, the beds of such patients are usually removed outside the ward and placed in the open.

The number of cases admitted to the City Hospital during the year was 925, as against 1,179 in the preceding year, and 1,346 in 1908. The number of zymotic cases in the city was smaller during 1910 than usual.

In a preceding table (Table XIV.), the proportion of the cases of the three most common of the notifiable zymotics admitted to hospital has already been given—the proportion being 91 per cent. for scarlet fever, 92 for diphtheria, and 100 for typhoid fever.

The accompanying table gives a summary of all the cases admitted, together with a corresponding summary for each of the preceding ten years. As usual, the bulk of the patients were suffering from scarlet fever, but there was a large number of cases of diphtheria—the largest number of such cases ever dealt with in any year since the hospital was opened.

Scarlet Fever.—Of this disease, 613 cases were admitted. The case-mortality was very low, being only 1·1 per cent., although slightly above that for the preceding year, which was only 0·8. There are very few hospitals, if any, with a lower case-mortality for scarlet fever. The average case-mortality for the last four years in the Aberdeen City Hospital has been only 1·1, during which time 2,937 cases have been admitted.

Diphtheria accounted for 272 cases. The number of patients suffering from this disease admitted to the hospital has been almost steadily rising year by year for a considerable period, so that it is now three times as great as it was ten years ago. This is due, partly, to a larger proportion of the cases receiving hospital treatment, but, mainly, to the increasing prevalence of the disease. The type of the disease last year was more severe than usual, the case-mortality being 11·8 per cent., as against 9 per cent. in the previous year. This is the highest case-mortality for several years.

As usual, a large proportion of the fatal cases died shortly after admission, having been sent to the hospital after the symptoms had become dangerous. Out of a total of 32 deaths, 14 took place within 24 hours from the time of admission. In 26 out of the total (272) cases treated, tracheotomy was found to be necessary on the admission of the patient, and succeeded in saving life in 15 cases. In the case of one patient that died, tracheotomy had been performed before admission. The average age of those who required tracheotomy was $2\frac{3}{4}$ years. The average age of those who died after operation was exactly 2 years. Of these, 3 were practically moribund on admission; 1 was a premature child, with hydrocephalus; and another suffered from wasting since birth.

Intubation of the larynx was begun in October, 1910. Five patients were intubated, of whom 2 died. The average age of those intubated was 3 years. The ages of the 2 who died were 1 year and 7 months and 1 year and 8 months respectively.

In only 30 cases—or about 1 in 9—had antitoxin been administered before admission, although the Department continues to offer antitoxin gratuitously to medical men and to lend a sterilised syringe.

Two of the deaths occurred in very young infants—one, 10 days old, and the other, 14 days. Neither of these cases was operated on. The average age of all the patients who died was $3\frac{1}{2}$ years. The average duration of the disease in patients who died was 5 days from the time of admission to hospital.

Typhoid Fever was the cause of the admission of 16 cases during the year, or nearly half the number in the preceding year. Two of the cases died, so that the case-mortality was 12·5 per cent., which is somewhat higher than usual; but the case-mortality of typhoid varies considerably from time to time. No case was discharged from the hospital until the urine and stools were found to be free from the bacillus after two successive examinations. Observations elsewhere have shown that the appearance of the bacillus in the excreta of a convalescent typhoid case

is apt to be intermittent, and that weeks may even pass without any appearance of the bacillus, when suddenly, later on, it once more shows itself. Two successive negative examinations are, therefore, not conclusive, but they are about as many as can be expected to be made in the ordinary routine of hospital administration. It is our practice to allow, at least, a week to elapse between the successive examinations.

Epidemic Cerebro-spinal Meningitis.—Three out of the four cases notified during the year were removed to hospital. One was a child of 12 years, another was 9, and the third was 2. All were treated with Flexner's serum, and made an excellent recovery. The attack, in the case of the child of 9 years, was exceptionally mild. The type of the disease, as observed in the hospital-treated cases, has become distinctly milder than it was during the earlier visitations of the disease four years ago. The treatment with Flexner's serum has almost certainly been useful in promoting a rapid recovery of the cases, but the mildness of the cases from the outset was such as to make it not improbable that recovery would have ensued, although more slowly, without any special treatment. The characteristic micro-organism was found in the cerebro-spinal fluid of each case.

Typhus Fever.—No cases.

Small-pox.—No cases.

Measles.—In all, only 4 cases of this disease were admitted to the hospital during the year, but the prevalence of the disease in the city was exceptionally small. All the cases treated in the hospital made a good recovery.

Among other zymotic cases treated in the hospital were 11 of *erysipelas*, 4 of *whooping cough*, and 2 of *puerperal fever*.

MATTHEW HAY.

30th December, 1911.

APPENDIX.

SPECIAL INQUIRY INTO STILL-BIRTHS IN 1910.

This being the first complete calendar year of the operation of the Notification of Births Act, which had been adopted in June, 1909, and the first year in the history of the city in which information was available as to the number of still-births, I endeavoured to obtain, with the valuable assistance of the Health Visitors, some information regarding each still-birth beyond that contained in the bare notification.

With this object a card was prepared, with headings for information as to size of house and cleanness, number of previous children, alive and dead, of mother, number of previous still-births, father's occupation and means, whether mother was herself a wage-earner, health of mother, whether child was believed to be dead before parturition began, and for how long, the sex of the child, and the supposed cause of the still-birth. It was also ascertained whether the birth had been attended by a medical man or a midwife, and if the confinement had taken place within the Maternity Hospital, or in connection with the out-patient department of the Hospital.

The information was in most of the cases obtained by inquiries at the mother or nurse, but it was in a considerable proportion of cases supplemented by information from the medical attendant.

The information regarding the duration of the death of the infant before birth is, naturally, open in many cases to considerable doubt, but it was the best obtainable. So also is the information regarding the cause of the still-birth. The mother's impression as to the latter may easily have erred.

It has already been stated in the chief report that the total number of still-births notified during the year was 193. It was possible to check the completeness of the notifications of live births by reference to the births registered by the registrars, and it was found that 8 per cent. of such births had failed to be notified. It may be assumed as probable that a slightly larger percentage of the still-births escaped notification. Still-births are not registrable, and their number did not, therefore, admit of being checked. Probably 10 per cent. should be added for the omitted notifications. This raises the total number of still-births to 211.

Authorities differ in the definition of a still-birth. Some apply the term only to births taking place at the seventh month of pregnancy and later. If this definition is accepted, the number falls to be reduced by 13, as 13 still-births were

ABERDEEN.—STILL-BIRTHS.—YEAR 1910.
A.—CHILD BELIEVED TO BE ALIVE UP TO COMMENCEMENT OF PARTURITION.
(Males, 35; Females, 28; Sex not stated, 3; All, 66.)

	SEX.	SIZE OF HOUSE.	BIRTH CONDUCTED BY	PREVIOUS STILL-BIRTHS.*	No. OF FIRST PREGNANCIES,	Born at (Month)			Wrong Pre-sentation (17 cases-).	Difficult Labour (14 cases).	Contracted Pelvis. (19 cases.)			Mal-formation of Child. (2 cases.)		Prolapse of Cord. (6 cases.)	Placenta Prævia. (3 cases.)		Other † Causes. (5 cases.)	Totals.
						Total No. of Births,					8½-9		8½-9		8½-9		8½-9			
						Total No. of Births,			17	14	15	8	7	6	9	8½-9	8	9	8½-9	66
						Male,			7	7	11	1	1	1	1	3	1	2	4	35
						Female,			8	6	4	2	3	1	2	1	28
						Not Stated,			2	1	..	..	..	..	..	..	..	..	3
						1 or 2 Rooms,			14	11	2	..	3	1	2	2	43
						3 Rooms,			2	2	..	..	..	..	..	2	2	3	16
						4 Rooms and upwards,			1	1	..	..	..	..	..	1	..	..	7
						Medical Practitioner,			10	11	13	..	..	2	..	5	1	5	47
						Midwife,			1	..	1	..	..	..	..	..	..	..	2
						Med. Practitioner and Midwife,			2	..	..	..	..	..	..	..	..	..	2
						Maternity Hospital :—			..	..	..	..	..	..	..	1	..	..	3
						(a) Out-patient,			2	..	..	..	..	..	..	..	2	..	12
						(b) In-patient,			2	3	5	..	..	..	..	..	..	..	..
						No. of Mothers with such Births,			2	2	8	..	..	..	..	2	..	..	14
						No. of such Births to each Mother,			(2-3)	(1-2)	(1-6)	..	..	..	..	(2-5)	..	..	(1-6)
						Total No. of such Births,			4	3	23	..	..	..	..	7	..	..	37
						No. OF FIRST PREGNANCIES,			5	9	7	..	..	..	..	4	..	3	28
						PREVIOUS CHILDREN BORN ALIVE.			29	14	19	11	..	..	..	7	2	3	83
						Total Number living,			11	6	9	..	..	..	..	..	..	..	26
						Total Number dead, . . . . .			..	..	..	..	..	..	..	..	..	..	..
						Health good,			12	13	10	..	..	..	..	4	..	4	43
						" fair,			4	1	9	..	..	..	..	1	3	1	19
						" indifferent or bad,			1	..	..	..	..	..	..	..	..	..	4
						Means good,			10	12	12	1	..	1	..	5	3	5	48	
						" not good,			7	2	7	1	..	1	..	1	..	..	18
						Wage-earning,			1	2	1	..	..	..	..	2	1	..	7

* Including Miscarriages.

† Violent Excitement, Premature Rupture of Membranes, Cord round Neck, &c.

ABERDEEN.—STILL-BIRTHS.—YEAR 1910.

B.—CHILD BELIEVED TO BE DEAD BEFORE COMMENCEMENT OF PARTURITION.

(Males, 55; Females, 59; Sex not stated, 2; All, 116.

	BORN AT (Month)				Falls, Blows, Over-straining. (35 cases.)				Shock, Fright, Worry, Underfeeding. (21 cases.)				Ill-Health.—(Syphilis, Epilepsy, Metritis, Anaemia, Nephritis, Bronchitis. (35 cases.)					Alcoholism. (2 cases.)		Other or Undefined Causes. (23 cases.)					TOTALS.				
	8½-9	8	7	6	8½-9	8	7	6	8½-9	8	7	6	9	8	7	6	9	9	8	7	6	8½-9	8	7	6	?	All.		
Sex.	Total No. of Births,				21	4	5	5	6	1	17	9	8	7	6	?	2	14	3	3	3	63	17	20	13	3	116		
	Male,	11	3	2	3	5	4	1	10	1	7	4	2	...	...	...	2	7	1	...	3	35	9	3	8	...	55
	Female,	9	1	3	2	4	1	4	7	4	6	2	3	...	...	...	...	7	2	3	...	27	8	16	5	3	59
	Not Stated,	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1	...	1	...	...	...	2
SIZE OF HOUSE.	1 or 2 Rooms,				16	4	4	4	5	1	11	3	4	3	1	1	1	8	2	2	3	42	13	15	11	1	82		
	3 Rooms,	1	1	...	2	2	1	1	...	5	2	1	1	2	1	2	1	3	3	1	...	12	3	3	1	2	21		
	4 Rooms and upwards,	4	...	1	1	1	...	...	...	1	...	...	...	...	...	...	...	3	1	1	...	9	1	2	1	...	13
BIRTH CONDUCTED BY	Medical Practitioner,				12	2	4	4	3	2	14	3	3	2	2	2	2	10	...	3	3	42	8	12	9	2	73		
	Midwife,	6	1	...	1	4	...	...	...	2	1	2	2	1	...	...	...	2	2	...	...	14	4	2	3	1	24
	Med. Pract. and Midwife, Maternity Hospital—	...	1	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	2	...	...	...	3	
	(a) Out-patient,	2	...	1	...	...	...	1	4	1	1	1	...	...	...	...	...	...	...	...	2	2	6	1	...	11	
	(b) In-patient,	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	1	...	...	...	5	
CHILD BELIEVED TO BE DEAD BEFORE BIRTH FOR	1 week and under,				7	3	1	3	1	2	10	4	1	0	...	...	...	6	...	...	1	26	8	4	4	...	42
	2 weeks and above 1,	6	1	...	3	3	1	3	...	3	1	3	1	...	...	...	...	2	1	2	...	14	2	4	1	...	21
	4 weeks and above 2,	8	1	2	1	2	...	...	...	...	3	1	...	...	...	...	...	4	1	2	...	13	4	7	2	...	26
	Above 4 weeks,	...	...	...	1	1	...	1	...	1	...	...	2	3	1	...	1	...	...	...	2	...	...	1	...	...	3
	Not stated,	...	...	1	2	1	...	...	...	...	3	...	2	2	3	1	...	...	2	1	8	3	4	6	...	24	
PREVIOUS STILL-BIRTHS.*	No. of Mothers with such Births,				4	1	2	1	4	1	3	3	2	2	...	...	2	3	...	...	1	16	8	5	4	...	33
	No. of such Births to each Mother,	(1-2)	(1)	(6)	(1-7)	(2-4)	(3)	...	...	(1-5)	(1-4)	(1-6)	(1)	...	...	(1)	(1)	(1)	...	...	(1)	(1-7)	(1-4)	(1-6)	(1-6)	...	1-7
	Total No. of such Births,	5	1	2	6	18	11	3	...	9	7	7	2	...	...	...	2	3	...	...	1	37	19	12	9	...	77
No. OF FIRST PREGNANCIES,	...				5	2	2	2	1	...	5	1	2	...	2	...	...	2	1	1	1	13	4	8	3	2	30
	Total No. living,	40	3	2	7	40	10	11	1	38	9	14	11	1	...	...	15	38	1	4	6	171	23	31	25	1	251
PREVIOUS CHILDREN BORN ALIVE	Total No. dead,	6	4	1	4	11	14	1	...	13	10	4	2	...	...	...	9	12	1	...	7	51	29	6	13	...	99
MOTHER.	Health good,				18	4	4	4	4	3	...	...	...	...	...	...	1	9	1	3	2	32	7	10	6	...	55
	" fair,	3	...	1	1	3	2	2	1	15	5	4	2	2	1	2	1	4	2	...	...	26	10	7	5	...	50
	" indifferent or bad,	...	...	...	...	2	...	...	...	2	...	1	2	1	...	...	...	1	...	...	...	5	...	2	2	1	10
	Means good,	13	3	4	4	3	3	1	1	11	4	4	2	2	2	2	...	9	2	1	2	36	12	10	9	2	69		
	" not good,	8	1	1	1	6	2	5	...	6	1	2	1	1	1	1	2	5	1	2	1	27	5	10	4	1	47		
	Wage-earning,	6	1	1	...	...	...	...	...	2	...	...	...	...	...	...	...	2	2	1	...	10	3	4	...	1	18

* Including Miscarriages.

notified of children that were reported to have been born between the sixth and seventh months of pregnancy. This reduces the probable total number of still-births to 198, which, as there were 4,319 live births during the year, gives 1 still-birth in every 23 births occurring in the city, or about 44 per 1,000; and if the still-births between the sixth and seventh months of pregnancy are included, the proportion is raised to 47 per 1,000.

Great Britain is one of the few countries in which still-births are not registered, so there have been until now practically no records of still-births for this country except in Maternity Hospitals. In those countries in which the registration of still-births is obligatory, I find that the proportion of such births is usually not higher than 45 to 46 per 1,000 births. This is about the proportion for France, Italy, Belgium, and Holland. In some other countries, however, such as Norway, Sweden, and Denmark, it is usually as low as 26 to 28 per 1,000. A good deal must depend upon the completeness of the registration.

Of the 193 still-births notified last year in Aberdeen, particulars were obtained in 182 cases. In 5 of these cases, however, the sex was omitted to be stated.

I have divided the 182 cases of which particulars were obtained into two groups, according as the child was believed to be alive (Group A) or not (Group B) at the commencement of parturition (see Tables A and B). In the cases where the child is alive before labour begins, the cause of death is practically always associated with one or other of the defects or accidents of parturition. In the other group of still-births, the death of the infant is due to other causes, such as the health of the mother, the effect of falls or blows, or of shock, or of fright, or under-feeding, or, it may be, alcoholism.

Sex.—In regard to sex, the two groups gave, as might have been expected, somewhat different results. Where the death of the child is due to the effects of labour, a male child is more likely, on account of the larger size of its head, to suffer than a female child. Thus, among the 63 infants of known sex believed to be alive at the commencement of parturition, and of which a note of the sex is available, 35 were males and 28 were females; whereas of the 114 infants of known sex believed to have been dead before the commencement of parturition, 55 were males and 59 were females. The following table gives, for each group, as also for the combined groups, the number of children of each sex born at each month of pregnancy:—

Stage of Pregnancy. (Months.)	GROUP A. Alive when Parturition began.					GROUP B. Dead before Parturition began.			
	Males.	Females.	Not stated.	All.		Males.	Females.	Not stated.	All.
8½-9 . .	33	24	3	60	...	35	27	1	63
8 . .	1	3	—	4	...	9	8	—	17
7 . .	1	—	—	1	...	3	16	1	20
6 . .	—	1	—	1	...	8	5	—	13
Not stated . .	—	—	—	—	...	—	3	—	3
Totals, .	35	28	3	66	...	55	59	2	116

Stage of Pregnancy. (M nths.)	COMBINED GROUPS.			
	Males.	Females.	Not stated.	All.
8½-9 . .	68	51	4	123
8 . .	10	11	—	21
7 . .	4	16	1	21
6 . .	8	6	—	14
Not stated . .	—	3	—	3
Totals, . .	90	87	5	182

If the whole of the still-births be taken together, the males show only a slight excess, namely, 90, as compared with 87 females, or a proportion of 103 to 100. The proportion of males was considerably under that usually found in still-births—at least in countries in which still-births are registrable. In these countries the proportion of still-born males to females is usually about 130 to 100.

Among the still-births taking place at or close to the full term of pregnancy the males preponderated, and numbered 68, as against 51 females, and were in the proportion of 133 to 100.

Among the still-born infants at earlier stages, the females were greatly in excess, there being only 22 males as against 36 females, or in the proportion of 63 to 100. The excess of females was almost entirely among infants born at the seventh month. The large difference may be due to the statistical fallacy attaching to an analysis of small numbers.

Stage of Pregnancy.—The stage of pregnancy at which the still-births were stated to have occurred is given in the accompanying tables. Among those alive up to the commencement of parturition the pregnancy had, with few exceptions—6 out of 66—reached its full term; but among the infants believed to be dead before parturition began, scarcely more than one-half—63 out of 113 of stated duration of pregnancy—were born at the full term. The difference is to be explained mainly by a difference in the causes of the death of the child. Causes operative apart from the effects of parturition may kill the infant at almost any stage of pregnancy.

Alleged Causes of Death of Infant.—The ascribed causes, as already indicated, essentially differ for the two groups.

Of the 66 still-births in which the child was alive up to parturition (Group A), 19 were said to be due to the contracted pelvis of the mother—a condition usually arising from rickets in early life. With these 19 births must be closely associated 14 still-births said to be caused by difficult labour. In some of the latter there may also have been contraction of the pelvis, although not stated. There are, however, other causes for difficult labour, such as lack of elasticity in the soft tissues, debility of the mother, large size of the child, and undue prolongation of pregnancy. In exactly one-half, therefore, of the 66 still-births the death of the child was attributed to difficult labour arising from contracted pelvis or some other cause. In nearly all of these cases instruments had been used.

In 17 of the remaining 33 cases death was attributed to the danger attaching to a wrong presentation.

In 6 cases, death was ascribed to prolapse of the cord, in 3 to placenta praevia, in 2 to malformation of the child, and in the remaining 5 cases to various other causes.

Of the 116 still-births in which the infant was believed to be dead before parturition began (Group B), death was alleged to be due in 35, or nearly one-third of the cases, to falls, blows, straining, or over-exertion; and in another 35 cases to the ill-health of the mother, such as syphilis (2 cases), epilepsy, metritis, or inflammation of the womb, anæmia, kidney disease, influenza, and bronchitis. In 21 cases the death was thought by the mother to be due to shock, sudden grief, fright, worry, under-feeding, and similar causes. In 2 cases alcoholism was the probable cause. In the remaining 23 cases the cause was not stated, or did not fall within the preceding categories.

Size of House.—This affords some measure of the social condition and means of the mothers. If poverty and the hardships associated with poverty favour still-births, we ought to find them more common in smaller houses than in larger houses. It has, of course, to be kept in view that the smaller houses are much more numerous than the larger houses, and that before any conclusion can be drawn from the number of still-births in the various classes of houses, the number of houses in each class must be known, or, what is probably better, the usual number or proportion of live births in each class. In 1908 I made a complete investigation of all the births in the city, and ascertained that the relative proportions of births in houses of different sizes, if the number of births in houses of four rooms and upwards be taken as 10, was 28 for three-roomed houses, and 71 for houses of one or two rooms.

The corresponding proportions for each group of still-births, and for both combined, were as follows:—

	Four Rooms and upwards.	Three Rooms.	One and Two Rooms.
All live births,	10	28	71
Still-births—Group A (alive up to commencement of parturition), .	10	23	60
Do. —Group B (dead before commencement of parturition), .	10	16	63
Do. —Combined Groups,	10	19	62

Still-births were, therefore, relatively less frequent among poorer-class than among better-class mothers, as judged by size of house, in spite of the presumably greater liability of the working-class mother to physical straining and to the anxieties and under-feeding associated in many instances with a small and precarious income.

Inquiries made as to the actual means of the households gave, however, a proportion of mothers with defective means that seemed to be distinctly larger than in the town generally. This was especially true of the cases in which the child was dead before parturition began. Thus, out of 116 mothers in such cases,

47 were reported as not being of good means. Of the 66 mothers whose child was alive up to parturition, 18 were of defective means.

Medical Attendance.—I was particularly interested in ascertaining whether the still-births might, in some considerable measure, have been attributable to the mother not having had the assistance of a qualified medical man. I was glad to find that in the group of cases in which the child was believed to be alive up to the commencement of parturition, and accordingly the kind of case in which proper medical help would be of most value, the proportion of cases receiving such assistance was far above the usual proportion for births in general in this city. Out of 66 cases, only 2 were attended by a midwife alone, and 2—or 5, if 3 out-patient Maternity Hospital cases are included—by a midwife supplemented by a medical man. In 12 cases, largely owing no doubt to expected difficulty of parturition, the mother had been admitted to the wards of the Maternity Hospital and was confined there.

It can scarcely, therefore, be alleged that a fuller medical assistance would have prevented any substantial proportion of these infants dying during birth.

As regards the group of still-births in which the child was believed to be dead before parturition began, the proportion of the confinements attended by midwives alone was 24 out of 116, or about one-fifth, and was, therefore, much larger than in the other group. Of these 24 still-births, 14 were at the full term, and the death of the child was attributed chiefly to physical straining, or blows, or falls, and to shock or worry—the baby being stated, in the majority of such cases, to have been dead for two or three weeks before birth.

It is possible that when a still-birth occurs in a confinement attended by a midwife—especially an inadequately trained midwife—there may be a tendency to speak of the child as being dead before parturition began in order to cover deficiencies in the midwife's skill.

Duration of Death before Birth.—Not much reliance can be placed on the information received under this head. It was chiefly obtained from the mother, who based it on cessation of fœtal movement, but it was in some cases verified by the opinion of the doctor or midwife as based on an examination of the child.

In 42 cases, or fully one-third of the 116 still-born children believed to be dead before parturition began, death was said to have taken place within the week preceding the birth; in 21 cases the child was believed to have been dead between 1 and 2 weeks; in 26 cases, between 2 and 4 weeks; and in 3 cases, 4 weeks and upwards. In 24 cases, no opinion was expressed as to the period.

Previous Still-Births.—In 58 of the total 182 still-births, or slightly under one-third, the still-birth occurred in the first pregnancy of the mother. Among the remaining 124 cases, 47 of the mothers—or fully one-third—had had previous still-births or miscarriages.

Still-births in the first pregnancy were relatively much more frequent (nearly 1 in 2) in the group of cases where the infant was believed to be alive up to

parturition than in the other group, in which the proportion was about 1 in 4. Mothers with previous still-births were, however, rather more common in the latter than in the former group. In other words, the causes that lead to the death of the child before parturition are more likely to be repeated in subsequent pregnancies than the causes which bring about the death during parturition. This is also borne out—but not in a marked degree—by the average number of previous still-births in each group for each mother with such births. For the group in which the child was dead before parturition began it was 2·6, while for the other group it was 2·3.

Of the 47 mothers with previous still-births or miscarriages, 22 had each one previous still-birth; 9 had each two; 5 had each three; 3 had each four; 2 had each five; 5 had each six; and 1 had seven. This gives a total of 114 previous still-births for 47 mothers, or an average of 2·4. If the last still-birth be added, the average number of still-births for each mother is raised to 3·4.

The mother who, with her latest still-birth, had altogether the large number of 8 still-births, had given birth also to 5 living children, 2 of whom had died in early infancy. The live births, except one, were the result of the first four pregnancies. The woman was distinctly under-fed and had led a life of constant worry. Her husband, although a good workman, was of irregular habits. In nearly every one of her still-births the child was believed to have been dead for a considerable time before birth.

In two of the cases where the mother had had altogether 7 still-births, including the latest, the mother had a contracted pelvis, and the child had usually died in the course of birth. It is of interest to note that in so far as these two mothers succeeded in bearing live children—in one case, 5 children, and in the other, 3 children—all the children, except one, had survived and enjoyed good health. The difficulty and perils of the parturition had, therefore, not greatly affected the health of the children who succeeded in being born alive. As to the remaining three mothers, with a total of 7 still-births each, the child had usually been dead before labour began. One mother was probably the subject of a very chronic tuberculosis. The other two enjoyed good health. Each of the three had given birth to live children—in all, 11 children, of whom 4 had subsequently died.

In the single case in which the mother had 6 still-births, including the last, she had also had one live birth, but the child died shortly afterwards. In this case syphilis was believed to exist.

In one of the three cases where the mother had 5 still-births, the mother had also 7 live births, with 4 subsequent deaths. Her first 5 children were born alive at the full term. While pregnant for the sixth time she received a bad fright, and gave birth four weeks later to a still-born child, which the doctor said must have been dead for four weeks. Her next two pregnancies terminated in a still-birth at the end of the sixth to the seventh month. Since then there has been an alternation of live and still-births. This woman was in comfortable circumstances.

In another of the three cases with a record of 5 still-births, the mother was in indifferent health. She had had 4 live-born children, but only 1 survived infancy. All her children, except two, had been born prematurely.

Of the four mothers who each had 4 still-births, one had also had 8 live births, with 3 subsequent deaths. These live-born children were the result of her first eight pregnancies. She had suffered an umbilical rupture during the last of these pregnancies, and each of her 4 subsequent pregnancies had ended in a still-birth, the child being usually dead for some time before birth. In another case the mother had 3 live-born children—the result of her first three pregnancies. All her subsequent children have been still-born and premature, and have usually been dead for some weeks before birth. She is very badly fed and in extreme poverty, and suffers from a weak heart. In a third case, the mother was also insufficiently nourished, her husband being much given to drink. She had had 7 live-born children, of whom only 2 survive—the others having died in early infancy. The live-born children were the product of her first pregnancies. Her last 4 pregnancies have ended in premature still-births. In the fourth case, with 4 still-births, the mother had also 3 live births, with, however, only one surviving child. This mother had a contracted pelvis.

First Pregnancies.—In 58 out of the 182 cases of still-birth investigated, the still-birth occurred in the first pregnancy. In 23 other cases, the still-birth took place in the second pregnancy, but in only 4 of the 23 was the previous birth a still-birth.

In the 58 first pregnancy cases, 30 of the infants were stated to have been dead before parturition began, the remaining 28 being believed to be alive up to this period.

Of the 30 that died before parturition, 14 were males and 15 were females (the sex being unknown in one case), and the alleged cause of the death of the child was given as straining, or falls, or blows in 11 cases, and as fright or shock in 4 cases. Illness of the mother accounted for other 10.

Of the 28 who died during parturition, 14 were males and 12 were females—the sex not being stated in 2 cases. Difficult labour or contracted pelvis accounted for 16 of the deaths—9 being of males and 7 of females. Four deaths were ascribed to prolapse of cord, and 5 to malpresentations. The males did not preponderate in these still-births to the extent that was anticipated.

It was of interest to find that the proportion of still-births in first pregnancies was much higher among mothers living in houses of four rooms and upwards—that is, among better-class mothers—than among the others. Of the total of 20 still-births occurring in the larger houses, 11 were of women in their first pregnancy, or about 1 in 2; while among women in the smaller houses the proportion was about 1 in 4.

Previous Children Born Alive.—This has already been partly referred to. The mothers in the 182 cases investigated had collectively produced 296 still-born children, including those under investigation. They also had collectively produced 459 live-born children, of whom 334 had survived. Excluding the 58 mothers who had only once borne a child, and that a still-born child, and dividing the mothers

according as the child at their last still-birth was alive before parturition or was dead, we get 38 in the former group, with 109 live-born children, or 2·9 per mother, and 86 mothers in the latter group, with 350 live-born children, or 4·1 per mother. In the former group the mortality among the live-born children was 24 per cent., and in the latter, 28 per cent.—or almost the same for both.

The relation of the sex of the children in live and still-births to difficult labour, arising from contracted pelvis and similar conditions, is of some interest. In the case of 15 mothers so suffering, excluding those pregnant for the first time, there had been 89 pregnancies, resulting in the birth of 38 males and 51 females. In 43 pregnancies the children were still-born—20 being males and 23 being females. In the remaining 46 pregnancies, in which the children were live-born, 18 of the children were males and 28 were females; and of these live-born children 37 survived, and 9 subsequently died. Of the 9 that died, 4 were males and 5 were females; and of the 37 that have survived, 14 were males and 23 were females.

It is noteworthy, to begin with, that there was a considerable excess of females in the total pregnancies. The numbers are too small on which to base any general conclusion, but, if the idea is not too fanciful, they suggest the possibility of the female sex—the more easily born sex—predominating in cases where the pelvis is contracted. Apart from this, it has to be observed that the proportion of females among the still-born children was considerable, in spite of the fact that the males are more usually still-born than females in such cases; and, further, that the males that did survive birth did not subsequently die in larger proportion than the females. Among the surviving children, the proportion of females was distinctly, but not greatly, higher than in the total children born.

Health of Mother.—Ill or indifferent health of the mother bulked much more largely in the cases in which the child was dead before parturition began than among the others. About one-half of all the former were of inferior health, or had been, before and during their last pregnancy, while only about one-third of the latter so suffered.

Wage-earning by the mother, or, in other words, employment in other than home duties, did not appear to have been a distinct factor in the causation of still-births. Such employment existed in 25 out of the 182 cases, and was most associated with still-births ascribed to blows or physical straining. In several of the cases of wage-earning mothers, the child was illegitimate.

M. H.



